



**HAVEMEYER BARS &
BUILDING PRODUCTS
CONCRETE STEEL
COMPANY of NEW YORK**

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CONCRETE STEEL
BUILDING PRODUCTS
HAVEMEYER BARS &

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CONCRETE STEEL COMPANY

Executive Offices: 42 Broadway, New York, N. Y.

Sales Offices

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Boston.....294 Washington Street	Omaha, Omaha L. & B. Ass. Bldg.
Chicago.....Monadnock Block	Philadelphia.....Pennsylvania Bldg.
Cleveland.....New Guardian Bldg.	Pittsburgh.....Union Arcade Bldg.
Detroit.....Lincoln Bldg.	St. Paul.....958 Berry Avenue
Kansas City.....Finance Bldg.	Syracuse.....Union Bldg.
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Warehouses

Youngstown, Camden, Birmingham, Chicago, Syracuse, Norfolk, Detroit, Boston, Washington, New York, Kansas City, St. Paul, Wichita

Sales Agencies and Stocks in All Principal Cities

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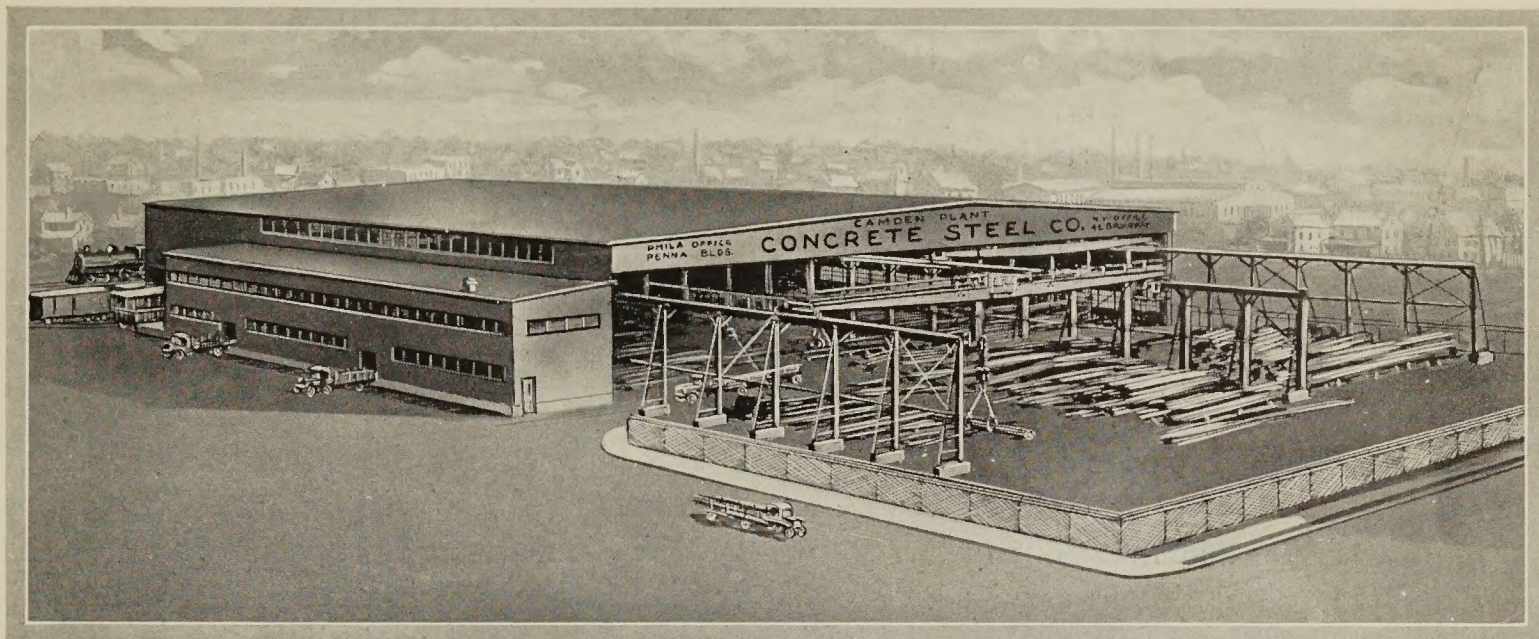
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CONCRETE STEEL COMPANY
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Camden Warehouse and Shops, Concrete Steel Co.

WE HAVE described in this catalogue the various products manufactured by this company for use in all types of reinforced concrete construction and fireproof buildings. It has not been attempted to give complete engineering or sales data, which we would be glad to furnish on request from any of our district sales offices. It is hoped that this booklet will be properly filed and referred to from time to time.

All Havemeyer Products are the result of careful study with the aim of furnishing the best possible article for its particular purpose. Around these products has been built up the Havemeyer Service, which brings to the job any of the products shown in this catalogue that may be required. There are many distinct advantages to

the architect, engineer and contractor to be gained by allowing one company to furnish all materials in its line required for any particular construction job.

We carry large stocks of Havemeyer Bars and Building Products in our warehouses located at central points of distribution. Each warehouse is equipped with the most modern labor-saving devices for handling our products, bending and fabricating Havemeyer Bars, manufacturing spirals and other devices required in reinforced concrete construction. This equipment is at your service—we are always ready and willing to serve you.

Concrete Steel Company also maintains district sales offices located in principal cities, and in addition it maintains sales agents and distributors in other large cities. This complete sales force is ready to render you any assistance possible on any concrete or fireproof structure, regardless of its location.

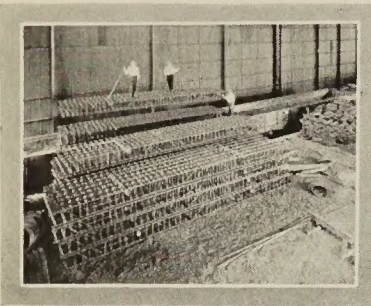
We maintain an engineering department in all of our sales offices, whose services are at the disposal of our customers, and our engineers are prepared to furnish you any detail which you



View of a section of a Concrete Steel Co. shop, bending Continuous Stirrup Reinforcement



Column Ties, bent, bundled and tagged—all machine work—at a Concrete Steel Co. warehouse



Assembled Bridge Slab Reinforcement being loaded at a Concrete Steel Co. warehouse

may require for the construction of your building. After you have placed your order with us, it is our business to get whatever material you order to your work on time. Delays are always costly and

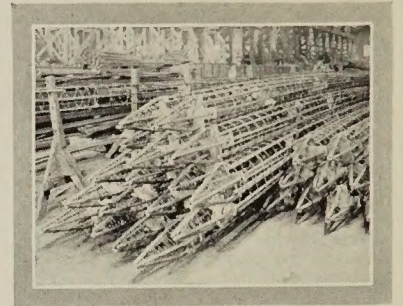
where Havemeyer Service is employed, you can be assured that your order will receive prompt attention and materials ordered will be delivered to your job as required.

Havemeyer Service is the result of twenty years of practical experience, beginning in the construction field and later developing into a service organization. Requirements of the contractor had to be studied, and our many years of experience in the field, together with the many large building operations which we have carried forward, during good and bad periods, assure the contractor the very best possible organization behind every order he places with us. To the architect or engineer who specifies Havemeyer Products, we can as-

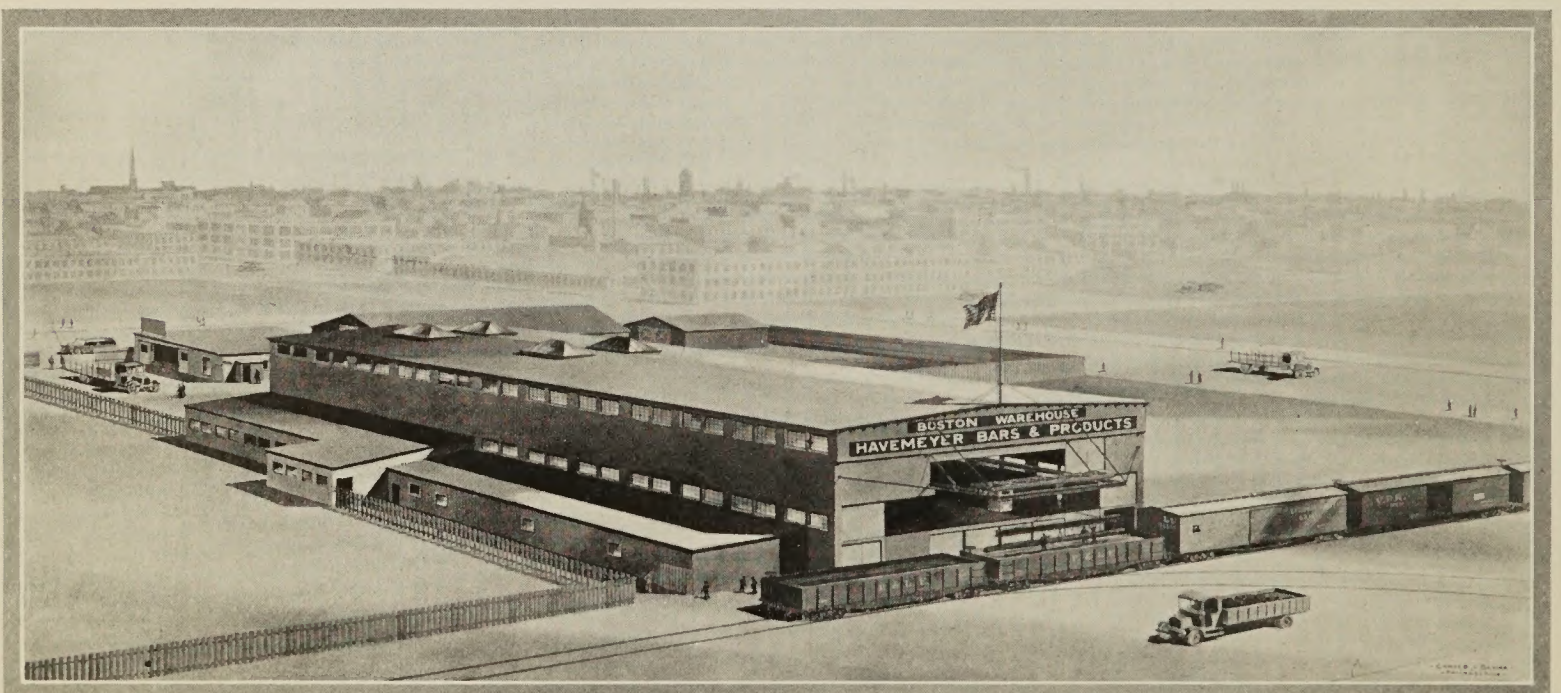
sure every possible advantage for the owner and contractor, always endeavoring to make our prices as low as possible consistent with quality.

Shop Bending

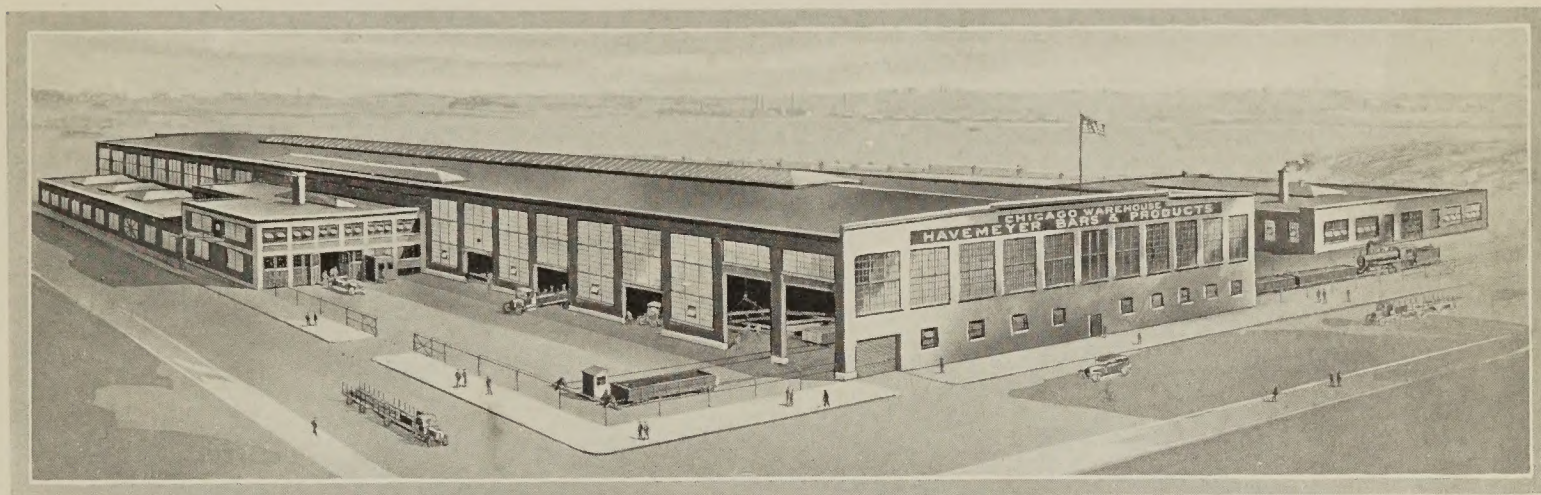
We would call the particular attention of the engineer and contractor to our facilities for shop bending and shop fabricating of Havemeyer Bars. This service is one which was originated by this company and has been built up during sixteen years of study and labor. Shop bending assures the contractor that the bars are correctly bent, tagged and are ready to place in the forms. This bending is done entirely by power machines, designed and built in our own shops and operated by experienced men. This is more economical than to employ men in the field, who necessarily must do a large part of the work by hand. It saves the contractor one operation and one less gang of men to look after. We would be very pleased to study any



Concrete Pile Reinforcement, fabricated in one of the plants of the Concrete Steel Co.



Boston Warehouse and Shops, Concrete Steel Co.



Modern Daylight Plant and Warehouse of Concrete Steel Co., at Chicago

job, no matter how difficult, furnishing the bars bent and fabricated ready to place in the forms. This service is the most modern and economical method of furnishing reinforcing steel, and too much cannot be said of its many advantages. We have attempted in this booklet to give a few illustrations showing some of the important steps in our warehouses towards furnishing fabricated steel for various types of jobs.

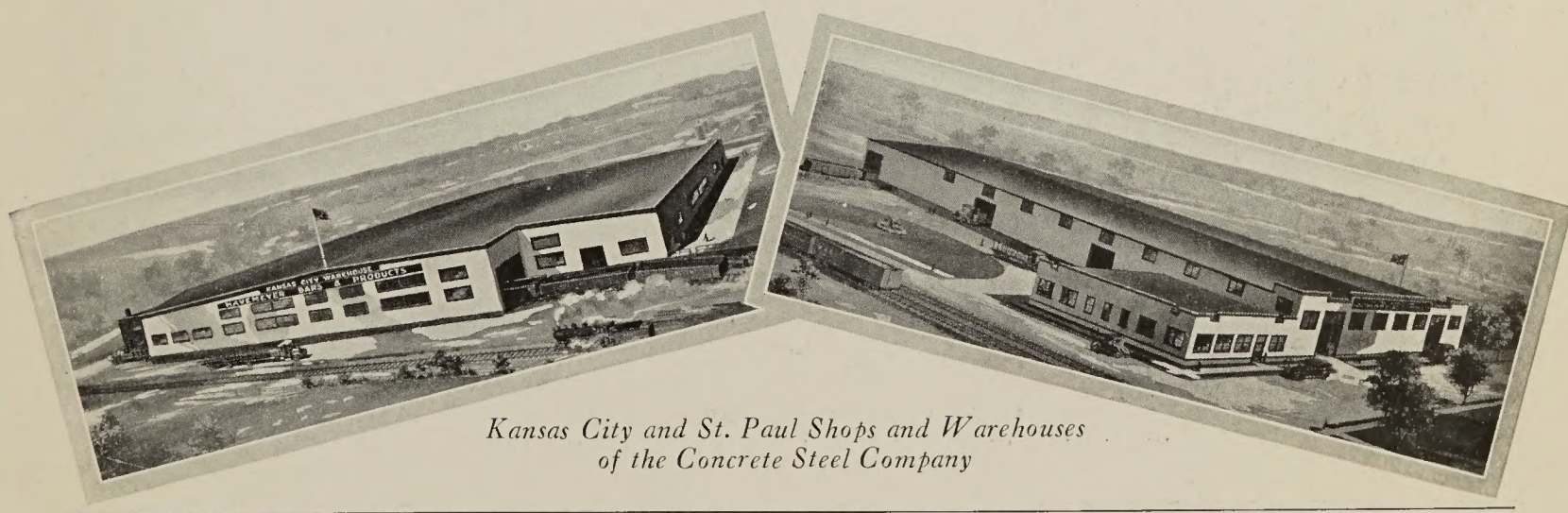
In addition to shop bending, Concrete Steel Company have been pioneers in furnishing new devices for holding the bars in their proper position while the concrete is being poured. These devices are economical and money savers.

We have also developed a complete line of wire products, which we manufacture on automatic machines in our own shops. Bar-Tys

are made from spring wire and make an absolutely rigid tie. Other forms of wire devices consist of Easel Chairs for holding the bars in small beams, Extension Clips for fire-proofing purposes in steel buildings, etc.

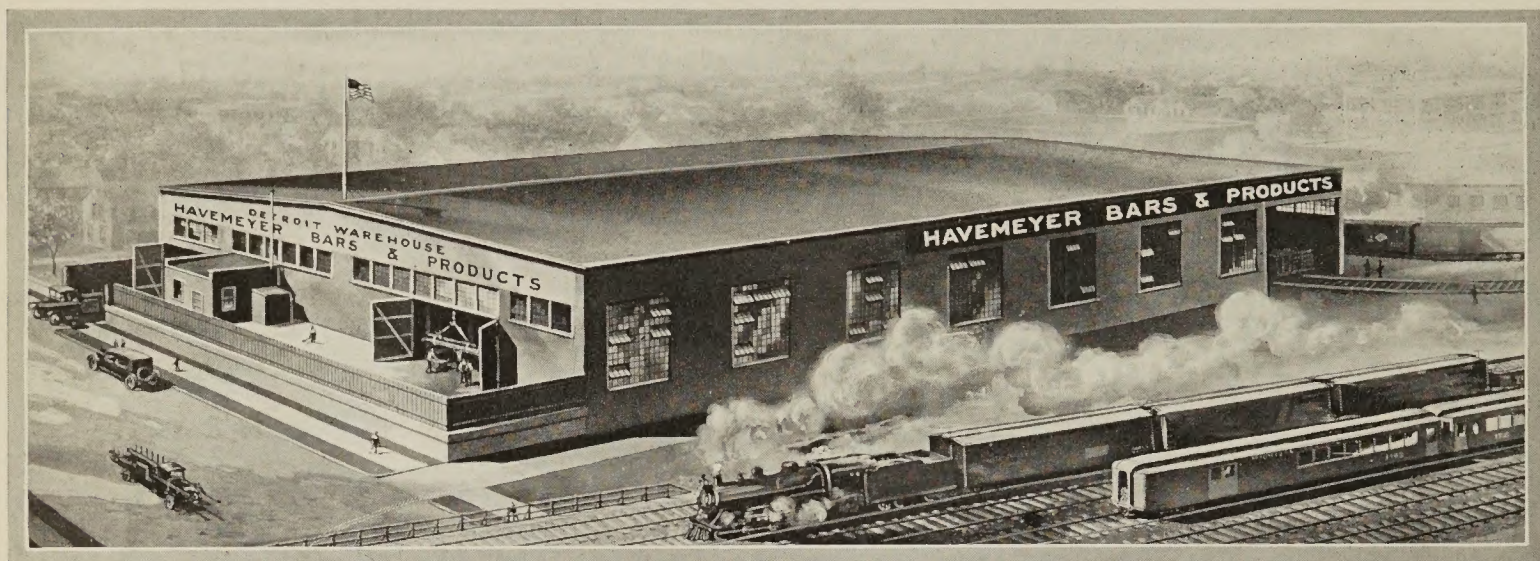
Havemeyer Collapsible Spirals are manufactured in our larger shops, and ordinarily are shipped to the job fully assembled and collapsed. All spirals are made with rigid angle spacers, the size of the angle used depending on the diameter and length of the spiral.

Havemeyer Spirals have proven uniformly satisfactory, and unless otherwise specified these spirals are made with two spacers. Extra spacers can be furnished, either assembled on the column or loose, in order to give additional rigidity. Hot rolled rods are ordinarily used for coils, but cold drawn wire can be furnished if required, at a slight additional expense.

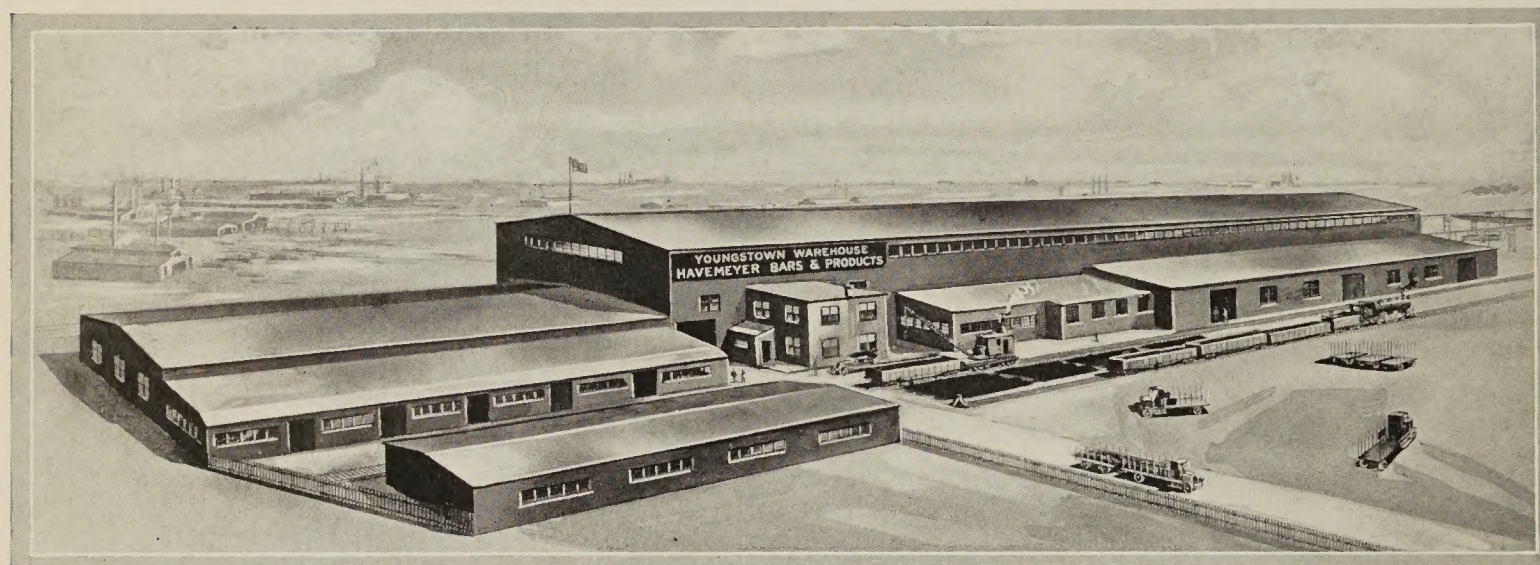


Kansas City and St. Paul Shops and Warehouses of the Concrete Steel Company

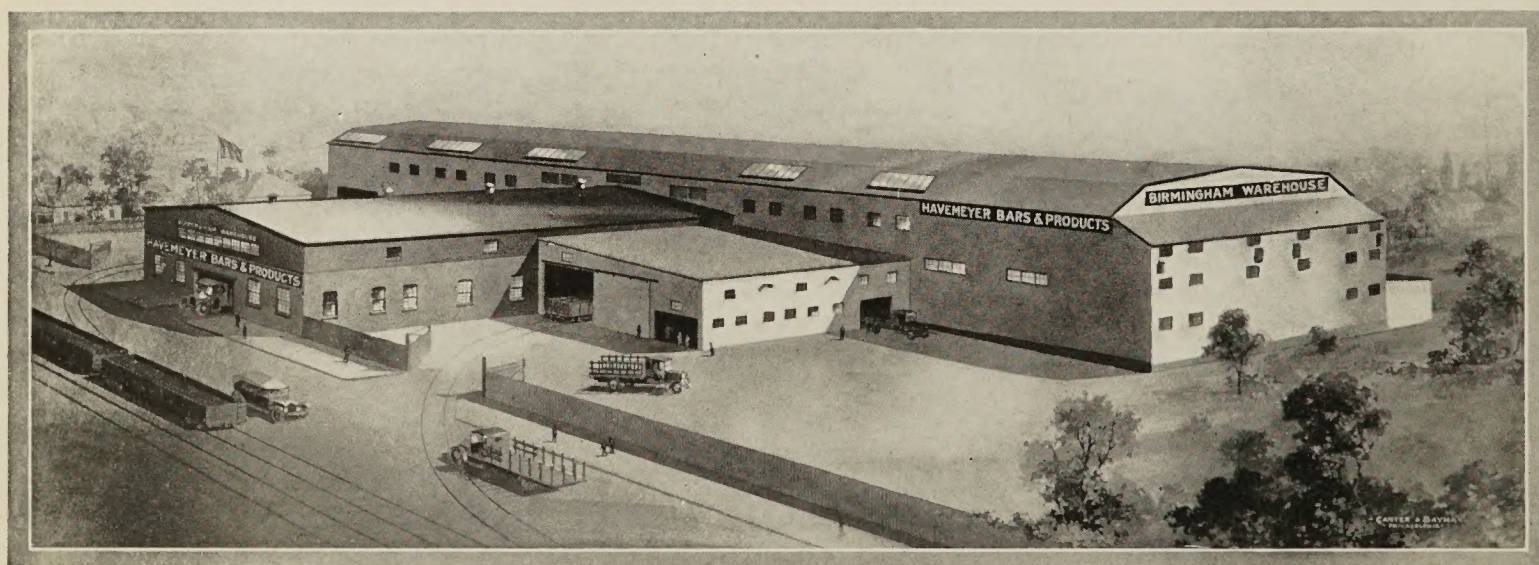
H A V E M E Y E R B A R S a n d B U I L D I N G P R O D U C T S



Detroit Plant and Warehouse of the Concrete Steel Company



Warehouse and Shops of the Concrete Steel Company at Youngstown, Ohio



Birmingham Shops and Warehouse of Concrete Steel Company



Engineering Staff, Headquarters Division of the Concrete Steel Co., supporting all branches and warehouses

Havemeyer Engineering Service

CONCRETE Steel Company maintains an experienced and efficient engineering department at every district sales office for the benefit of customers. These engineering departments will gladly co-operate with engineers, architects and contractors in making up designs, estimates and plans on any type of reinforced concrete structure—a service behind which are many years of experience in every conceivable kind of concrete reinforcing problem.

Our Engineering Department consists of especially trained engineers. We make up preliminary bids for contractors, furnishing

lump sum figures which include all reinforcing steel required, together with specialties, such as beam saddles, bar-spacers, Hy-Chairs, etc., including necessary bending, bundling, tagging and delivery of steel as required, floor by floor.

We make up bending details and furnish to our customers a complete list of steel required on the job, showing the location of each bar whether bent or straight, and also furnish any necessary erection plans, making original designs where required.

In other words, we take a building laid out by the architect or engineer and make up the complete design, together with working drawings, erection details and plans showing the location of all reinforcing steel. Frequently we can find ways of effecting substantial economies in construction costs. A moderate charge is made for this Engineering Service.

Whenever the slightest element of doubt arises as to the proper use of Havemeyer Products, the Concrete Steel Company's engineers stand ready to demonstrate the efficiency and helpfulness of Havemeyer Engineering Service.





To bring the steel to your job on time—a typical plant siding—an important phase of our service at all warehouses

Unsurpassed Havemeyer Bar Service

HAVEMEYER Bar Service today is the result of a careful study of the economical distribution of concrete reinforcement and building products. On the one hand, we have the large steel mills, equipped with modern, high-speed, continuous rolling mills, manufacturing steel bars in large quantities; while on the other hand we have a given building operation, requiring steel delivered on the job from day to day, week to week and month to month as the job progresses. The contractor naturally wants the steel delivered in accordance with the progress of his work, starting usually in the case of a building, with the footings, basement

columns, retaining walls, and then on up to the various floors and the roof, pent house, coping, etc. The steel required must be cut to various lengths, with bundles properly tagged so that each can be readily identified. If the work is located in a large city we can deliver in truck-load lots, working as closely

as possible to the contractor's construction schedule. Where material is shipped in carload lots, the same procedure is followed.

With the contractor, speed is usually essential, because speed means the saving of dollars in overhead and often means extra money in bonuses. Delays in the delivery of reinforcing steel are serious, for when the



Our larger warehouses are equipped with machine shops and special machinery—the best facilities are at your disposal

material is not on hand, construction work must stop, and any building operation closed down even for a day may mean the loss of thousands of dollars.

Havemeyer Service has been thoroughly and carefully organized so as to safeguard the contractor against delays. Building operations are carefully studied by our engineers, and our delivery schedules fit in closely with the schedules laid out by the contractor.

While the contractor wants to be sure that his reinforcing bars will not be delayed, it is equally important not to have this material arrive on the job too far in advance of the time it is needed. This also is expensive for the contractor, as bars become misplaced, rusty and usually require re-handling many times. In addition to this, the contractor assumes a financial obligation which he must meet and on which he cannot realize for perhaps several weeks or months. Havemeyer Service avoids this unnecessary expenditure, and by co-ordinating our shipments with the requirements of the contractor, a much smaller cash investment is required in his work.

Havemeyer Bar Warehouses are located in all the larger cities and principal shipping centers throughout the United States, with an additional list of dealers handling our material in smaller cities. Our organization has been built up of district sales offices in charge of competent and experienced sales managers. We can quote on a job anywhere in the United States from any one of our district offices, and each district office is prepared to enter orders

direct with any of our warehouses. This service has proven very valuable and a big time saver. A contractor located in one city and figuring on a job in some other part of the country can get full and complete information from our district office nearest to him.

Equipment

Each of our warehouses is equipped with the most modern machinery for handling, shearing, assembling, bending and fabricating reinforcing bars. These machines have been designed and built in our own shops to meet our own special needs.

Our facilities for shop bending are unsurpassed. Many different types of bar benders are used, depending on the type of bend required. These bar benders have been designed by us to do the work quickly and economically. Shop bending today is well established among the best contractors in the country. Bars can be bent in our warehouses much cheaper than on the job, and in addition the contractor has the satisfaction of knowing that when the bars are placed in the forms they are bent true to detail. Many engineers and architects are specifying shop bending on their work on account of the greater accuracy and economy than would be possible if the same work were done in the field.

Havemeyer Service, therefore, starts with estimating the job and ends with the delivery of the last lot of steel, bent, fabricated and ready to place in the forms.



Bending Bars to exact details—interior view of one of the many fabricating shops of the Concrete Steel Company



Bent Reinforcing Bars ready for delivery—another view of a typical Concrete Steel Company warehouse

Havemeyer Bars

HAVEMEYER Bars are rolled in Round, Square and Flat sections and are designed to meet the necessary requirements of a mechanical bond in concrete and at the same time maintain a constant cross section equal to that of a plain bar. The deformations in the bar run longitudinally and enter directly into the tensile strength of the bar, no metal being used for mechanical bond only. This means a bar with a strong mechanical bond, rolled to the same weight, area and strength of a plain bar, thus effecting a considerable saving in weight of metal over other types of deformed bars.

In the case of the square bar, this constant cross sectional area is obtained by alternating plain square sections with irregular sections produced by depressing two opposite corners of the bar and raising an equal amount of metal on its four faces.

On the round bar there are no depressions, but the projections on the adjacent faces are staggered. The same is true of the flat bar.

Havemeyer Flat Bars are designed particularly for construction requiring bars bent to a radius, such as silos, grain elevators and sewers. These bars bend very readily, as the upper and lower flanges come in contact with the bending rolls, leaving the deformations absolutely intact.

On all Havemeyer Bars the projections and depressions run longitudinally and rise and fall gradually, thus allowing a free and uninterrupted flow of metal while being rolled.

These irregularities or deformations offer a mechanical bond or resistance in the concrete which is more than sufficient to develop the strength of the bar, independent of the surface adhesion.

Laboratory tests have shown that Havemeyer Bars develop maximum efficiency, will not pull or split the concrete and will not twist under stress. There are no sharp edges to start a fracture.

Havemeyer Bars are rolled only from the highest grade new billet steel to any desired standard specification, at mills which do not

re-roll rails, thus avoiding any chance of error. Great care is used in the selection of steel. By specifying and purchasing Havemeyer Bars, the risk of securing an inferior grade of steel is eliminated.



Squares



Flats



Rounds

Economy in Construction

All Havemeyer Bars have a constant effective cross-section and consequently are rolled to the same weight as a plain bar of corresponding size, no metal being wasted to secure a mechanical bond in the concrete. Accordingly the contractor can reduce his cost of reinforcement to a minimum, at the same time furnishing the desired area of steel. A strong mechanical bond is secured without increasing the weight of steel and consequently without increasing the cost.

Havemeyer Bars will bend easily, because the metal in the projections follows the bend as readily as the metal in the body of the bar.

The changes in cross-section of the Havemeyer Bar are gradual. There are no abrupt changes which tend to start cracks in the steel when bending.

Havemeyer Bars can be easily wired at intersections, the projections and depressions preventing the wire from slipping. This is

of particular advantage when placing vertical reinforcement.

Havemeyer Bars are rolled on regular schedules in the Pittsburgh, Youngstown, Chicago, Birmingham, Buffalo and Kansas City districts by the largest and most modern rolling mills in the country.

During periods of unusual steel activity, when a shortage of steel exists and concrete bars are difficult to obtain, the large number of rolling mills furnishing Havemeyer Bars assures us a steady flow of steel into our warehouses, so as to maintain, at all times, uninterrupted Havemeyer Service.

Quality of Steel

Havemeyer Bars are rolled to Manufacturers Standard Specifications for Concrete Reinforcing Bars, New Billet Steel, using Structural, Intermediate or Hard Grade. They can also be furnished to other standard specifications.

THERE has never been a time since reinforced concrete construction became a factor in American building, when the engineer should pay more attention to the quality of steel entering into reinforcing bars, than at the present time. Great care should be exercised in the proper inspection of the steel that enters into a concrete structure. We would call particular attention to the fact that all Havemeyer Bars are rolled only from highest grade new billet steel, these billets being rolled directly from the original ingot, and every care is used to make sure that the purchaser is securing Havemeyer Bars of the quality of steel represented. This absolutely assures the architect, engineer, contractor and owner that only the very highest quality of steel will be used in his work. We consider this of the utmost importance.

Havemeyer Bars rolled in following sizes:

Size Round or Square	Sq. In. Area	Lbs. Per Ft.	Extra for Size per 100 Lbs.
1 1/4" sq.	1.563	5.313	Base
1 1/8" sq.	1.266	4.303	Base
1" sq.	1.000	3.400	Base
1" rd.	.785	2.670	Base
7/8" rd.	.601	2.044	Base
3/4" rd.	.442	1.502	Base
5/8" rd.	.307	1.043	10c
1/2" sq.	.250	.850	20c
1/2" rd.	.196	.668	20c
3/8" rd.	.110	.376	40c
1/4" rd.	.049	.167	\$1.00

The above sizes are recommended by the Department of Commerce and adopted as standard by the American Concrete Institute and by leading Distributors of Reinforcing Bars.

Havemeyer Flat Bars are rolled to standard area by special arrangement and are not carried in stock.

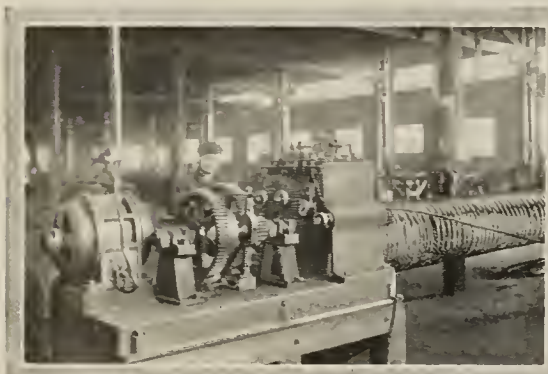


Bending light bars for stirrups, column hoops, etc., in a Concrete Steel Co. plant



Large stocks of Havemeyer Bars are carried at all Concrete Steel Co. plants

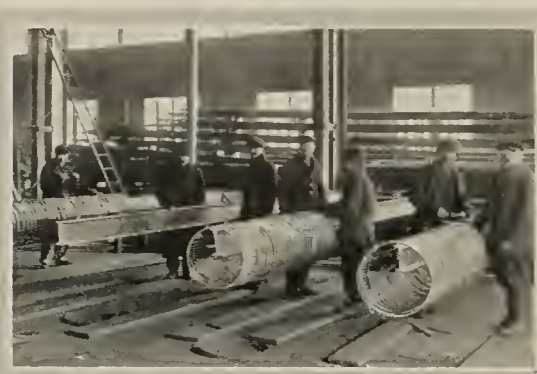
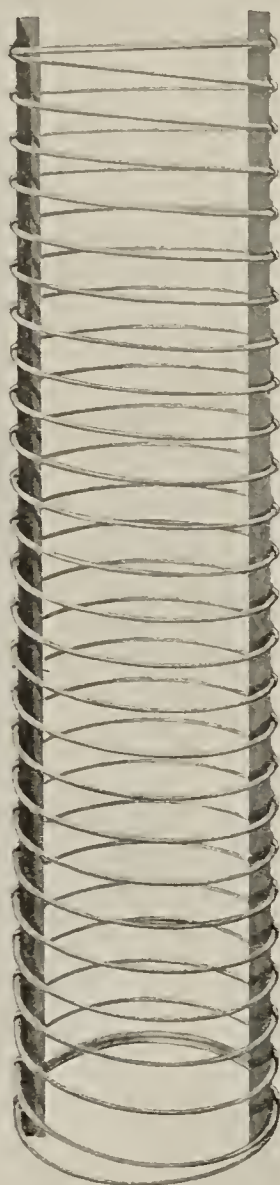
Havemeyer Collapsible Spirals



Making Havemeyer Collapsible Spirals in a typical Concrete Steel Co. fabricating plant

HAVEMEYER Collapsible Spirals are manufactured in our own shops, and prompt shipments can always be made. They are usually made up with two spacers and shipped collapsed. Additional spacers can be furnished if desired.

An angle spacer is used, the size of the angle depending upon the size and weight of the spiral. These angles give sufficient stiffness to hold the spirals in position when set in the forms. When properly handled the spirals require no straightening after arrival on the job. The coils are made from either hot rolled rods or cold drawn wire, as ordered. Rods are correctly coiled to a true diameter and rigidly attached to

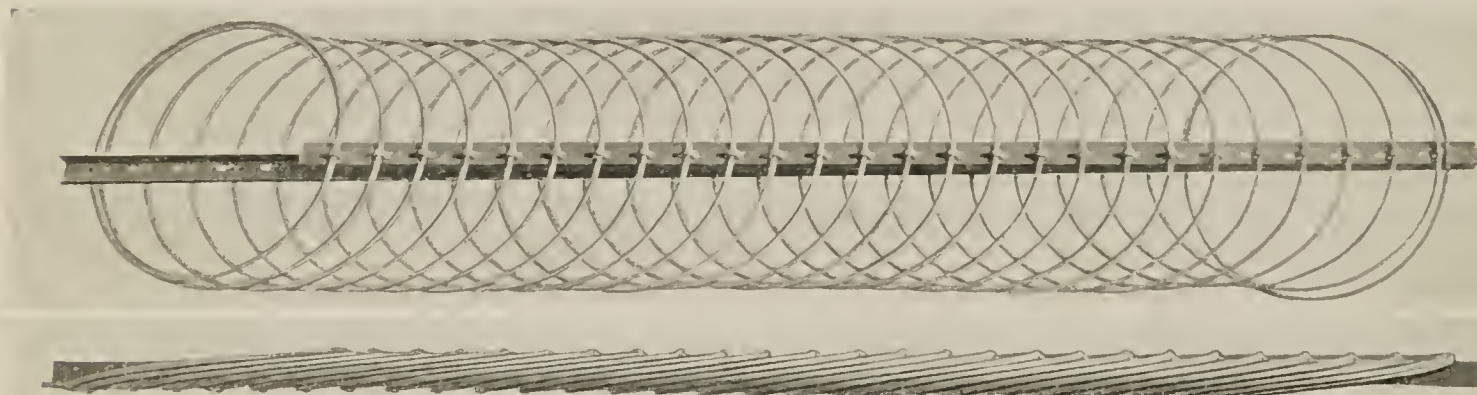


Assembling Havemeyer Collapsible Spirals—specially trained workmen are employed

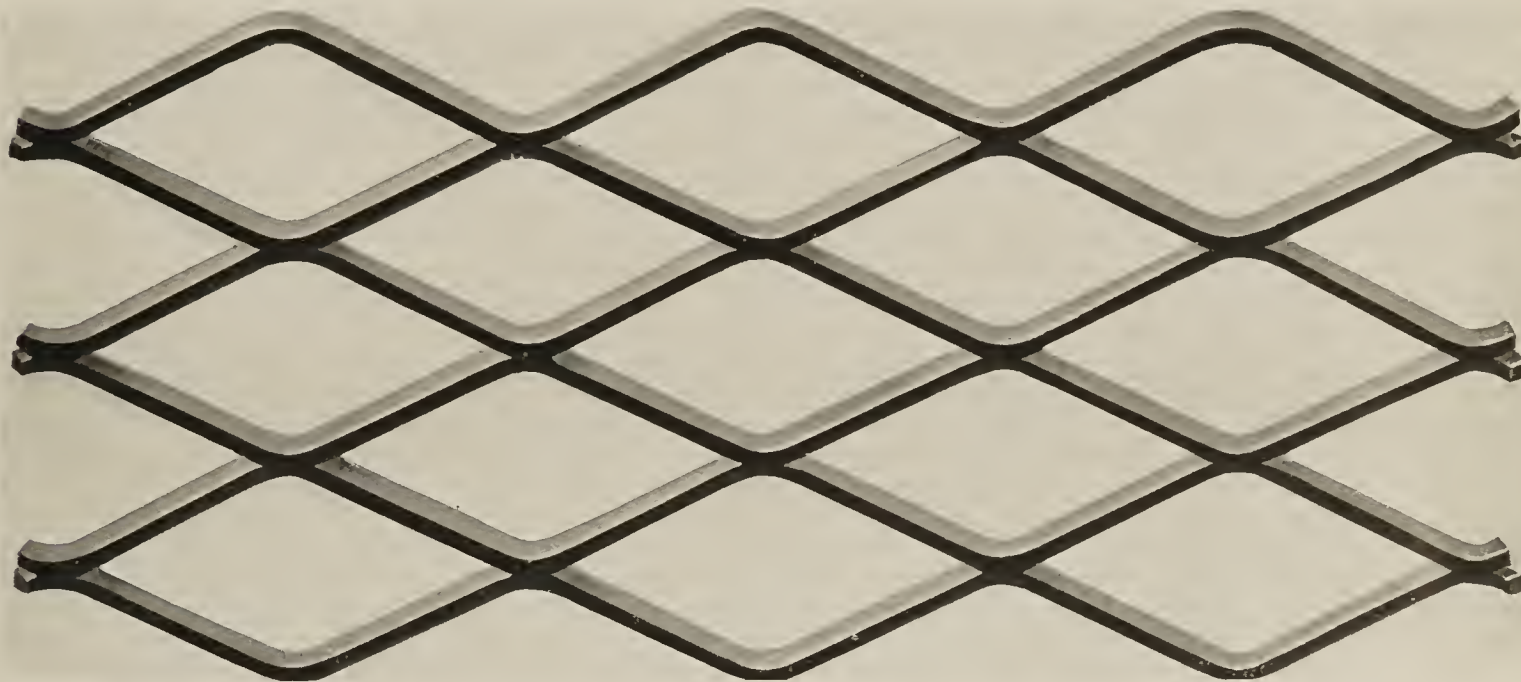
the spacer, allowance being made for collapsing. Coils are attached to one face of the angle, so that the strength or rigidity of the angle is not impaired. After very careful experimenting, this was found to make the most efficient type of spiral.

Havemeyer Collapsible Column

THE Havemeyer Collapsible Column is made up by using Havemeyer Bars for longitudinal members and for bands. The bands are attached to the longitudinal members by the use of Bar-Tys. These columns are shipped collapsed and are readily opened and set in place.



Bird's Eye and Side Views of a Havemeyer Spiral Collapsed—note how compact the Spiral is when collapsed



Havemeyer Expanded Metal

HAVEMEYER Expanded Metal is manufactured in many different gauges and in a large variety of meshes designed for various purposes. The coarser or heavier meshes are used generally for reinforcing concrete floors, roofs, bridges, sewers, retaining walls, etc. Expanded metal can be laid very rapidly by unskilled workmen. It is only necessary to lay the sheets in place with ends and sides lapping one diamond and to see that the sheets are kept the proper distance from the forms during concreting. This end lap is sufficient to develop the full strength of the steel and may occur at any point.

Because of this meshed formation, a concentrated load at any one point is immediately taken up and equally distributed over the entire area. Any tensile stress tends to compress the diamonds, and this in turn, is resisted by the concrete within the mesh.

The smaller meshes are used for machine guards, partitions, and other purposes.

We have a special type of expanded metal used largely to reinforce Burial Vaults. The strand of steel is about $3/32$ " wide, the expansions large enough to permit a free flow of concrete which eliminates voids. Sheets 24" x 96". Packed 16 yards to the bundle. Weight, 3.4 lbs. and 2.5 lbs. to the yard.

Reinforcing Meshes

Style	Weight Lbs. per Sq. Ft.	Widths of Sheets Short Way of Mesh	Lengths of Sheets Long Way of Mesh
306	0.20	6'	8' and 12'
308	0.27	6'	8' and 12'
310	0.34	4'	8' and 12'
3125	0.42	5'-6"	8' and 12'
315	0.51	7'	8', 10' and 12'
3126	0.60	6'	8', 10' and 12'
320	0.68	5'-6"	8', 10' and 12'
325	0.85	4'-3"	8', 10' and 12'
330	1.02	7'	8', 10' and 12'
335	1.19	6'	8', 10' and 12'
340	1.36	7'	8', 10' and 12'
345	1.53	6'-3"	8', 10' and 12'
350	1.70	5'-9"	8', 10' and 12'
354	1.83	5'-6"	8', 10' and 12'
360	2.04	4'-9"	8', 10' and 12'
365	2.19	4'-3"	8', 10' and 12'
2 $\frac{1}{4}$ 10	0.34	5'	8' and 12'
2 $\frac{1}{4}$ 15	0.51	4'-9"	8' and 12'

Special Meshes for Machine Guards, Open Partitions, etc.

1 $\frac{1}{2}$ 06	0.20	2'-9"	8' only
1 $\frac{1}{2}$ 08	0.60	4'	8' and 12'
1 $\frac{1}{2}$ 375	1.28	6'	8' only
3 $\frac{1}{4}$ 15	0.51	7'	8' and 12'
3 $\frac{1}{4}$ 24	0.80	4' and 6'	8' and 12'
3 $\frac{1}{4}$ 53	1.80	4'-6"	8' only
1 $\frac{1}{2}$ 20	0.68	4'	8' only

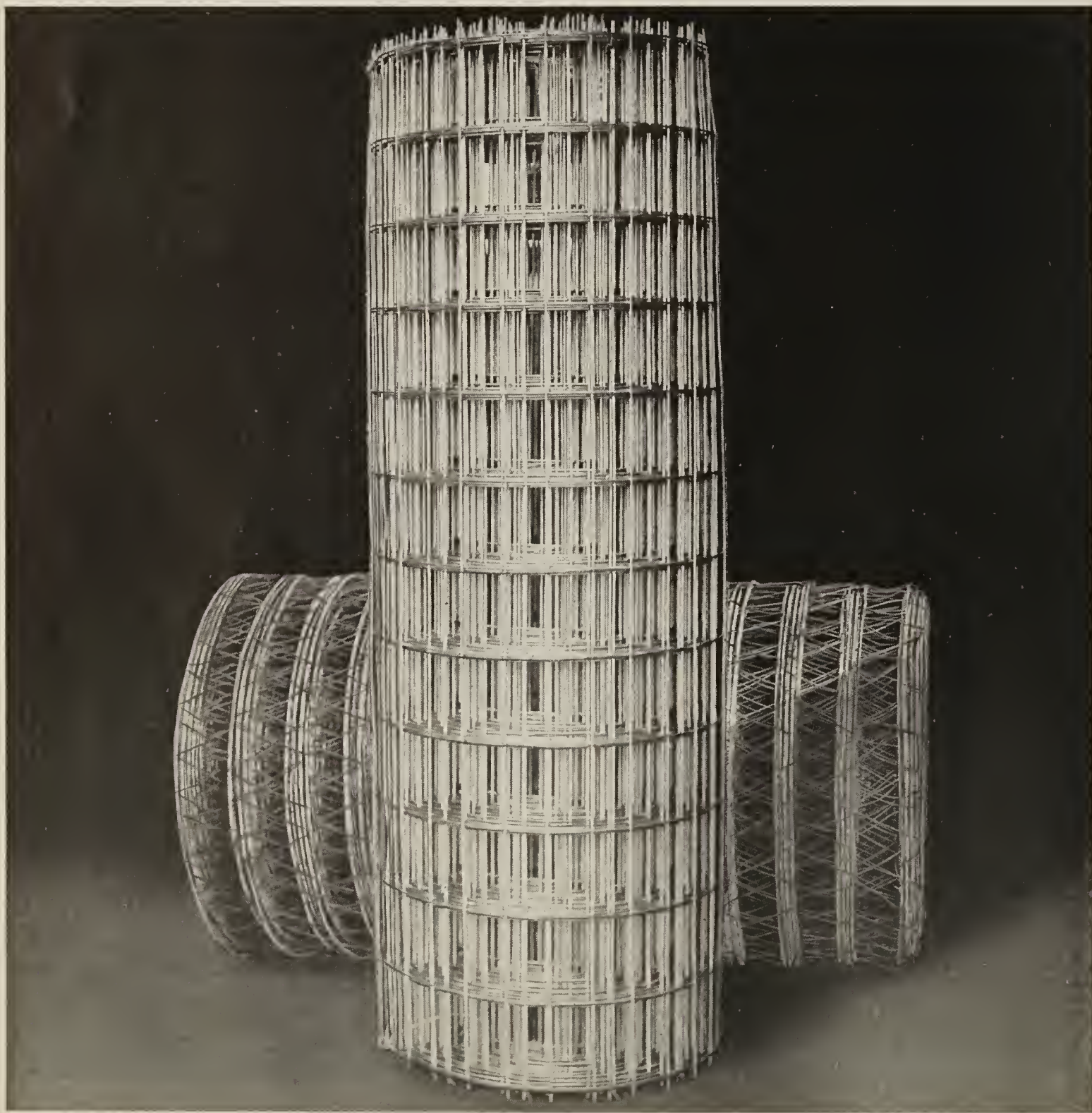
NOTE:—Interpret styles as follows: Style 306: 3 equals the short dimensions of the Diamond, 06 equals sectional area per foot of width.

Widths apply to dimension of sheet across short dimension of mesh; lengths apply to dimension of sheet along long dimension of mesh. When not otherwise stated, the first of two dimensions is always taken as the width.

Havemeyer Electric Weld Fabric

HAVEMEYER Electric Weld Wire Mesh or Fabric is used for reinforcing concrete slabs in building construction, roads, sidewalks, and many other places where a light reinforcement is required. It is usually shipped in rolls, either plain or galvanized.

In order to secure a variation in weight and area of steel, it is only necessary to use various sizes of wires and spacings. This flexibility in manufacture renders the Electrically Welded Fabric the most popular type of wire mesh reinforcement.



This material can be furnished in rolls or in sheets. It can also be furnished in various widths, plain or galvanized. We carry in stock certain types for which there is the greatest demand, and there are other types which we can ship from the mill promptly.

In addition to the types shown in the tables, other types can be supplied on order. Take up your requirements, whatever they may be, with our nearest district office, and we will give you prices, weights and areas on types which are not shown in the table.

Standard Styles Electrically Welded Fabric

Spacings of Wires in Inches		Gauge Number		Sect. Areas, Sq. In. per Ft.		Weight per 100 Square Feet
Longit.	Trans.	Longit.	Trans.	Longit.	Trans.	
2	16	1	7	.377	.018	138.9
2	16	2	8	.325	.015	119.4
2	16	3	8	.280	.015	103.6
2	16	4	9	.239	.013	88.5
2	16	5	10	.202	.011	74.6
2	16	6	10	.174	.011	64.7
2	16	7	11	.148	.029	54.8
3	16	2	8	.216	.015	82.6
3	16	3	8	.187	.015	72.0
3	16	4	9	.159	.013	61.4
3	16	5	10	.135	.011	51.8
3	16	6	10	.116	.011	45.1
3	16	7	11	.098	.009	38.1
3	16	8	12	.082	.007	31.7
4	16	3	8	.140	.015	56.1
4	16	4	9	.120	.013	47.9
4	16	5	10	.101	.011	40.4
4	16	6	10	.087	.011	35.2
4	16	7	11	.074	.009	29.7
4	12	8	12	.062	.009	25.5
4	12	9	12	.052	.009	21.8
4	12	10	12	.043	.009	18.6
4	12	12	12	.026	.009	12.6
4	12	5	5	.101	.034	48.4
4	12	6	6	.087	.029	41.6
4	12	7	7	.074	.025	35.4
4	12	8	8	.062	.021	29.6
6	12	0	6	.148	.029	65.3
6	12	2	2	.108	.054	59.4
6	12	3	3	.093	.047	51.2
6	12	4	4	.080	.040	43.8
6	12	5	5	.067	.034	37.0
6	12	6	6	.058	.029	31.8
6	12	7	7	.049	.025	27.0
6	8	12	12	.017	.013	11.1
6	6	4	4	.080	.080	57.8
6	6	5	5	.067	.067	48.8
6	6	6	6	.058	.058	42.0
6	6	7	7	.049	.049	35.7
6	6	8	8	.041	.041	29.9
6	6	9	9	.035	.035	25.0
6	6	10	10	.029	.029	20.7
4	4	4	4	.120	.120	85.3
4	4	6	6	.087	.087	61.9
4	4	8	8	.062	.062	44.1
2	2	10	10	.086	.086	60.3
2	2	12	12	.052	.052	36.8
2	2	13	13	.039	.039	27.7
2	2	14	14	.030	.030	21.2

Standard Stock Sizes for Prompt Shipment from Mill

Spacings of Wires in Inches		Gauge Number		Finish	Size of Stock Rolls	
Longit.	Trans.	Longit.	Trans.		Lgth. Ft.	Wdth. In.
2	16	3	8	Plain	150	48
2	16	4	9	"	150	48
2	16	5	10	"	150	48
2	16	6	10	"	150	48
3	16	3	8	"	150	48
3	16	4	9	"	150	48
3	16	5	10	"	150	48
3	16	6	10	"	200	48
4	16	3	8	"	150	48
4	16	4	9	"	150	48
4	16	5	10	"	200	48
4	16	6	10	"	200	48
4	16	7	11	"	200	48
4	12	8	12	"	200	48
6	6	6	6	Galv.	150	72
6	6	8	8	"	150	72
6	6	10	10	"	150	72
4	4	6	6	"	150	60
4	4	8	8	"	150	60
2	2	10	10	"	150	48
2	2	12	12	"	150	48
2	2	13	13	"	150	48
2	2	14	14	"	150	48

Widths:—Any multiple of the spacing of longitudinal wires up to a maximum of 96 inches for 6-inch or 4-inch spacing, 84 inches for 3-inch spacing and 60 inches for 2-inch spacing. (56-inch for No. 0 gauge spaced 2 inches.)

The transverse wires extend 1 inch beyond the outside longitudinal wires. Square footage or square yardage will be figured exclusive of these projections. Extra charge made for widths narrower than 40 inches.

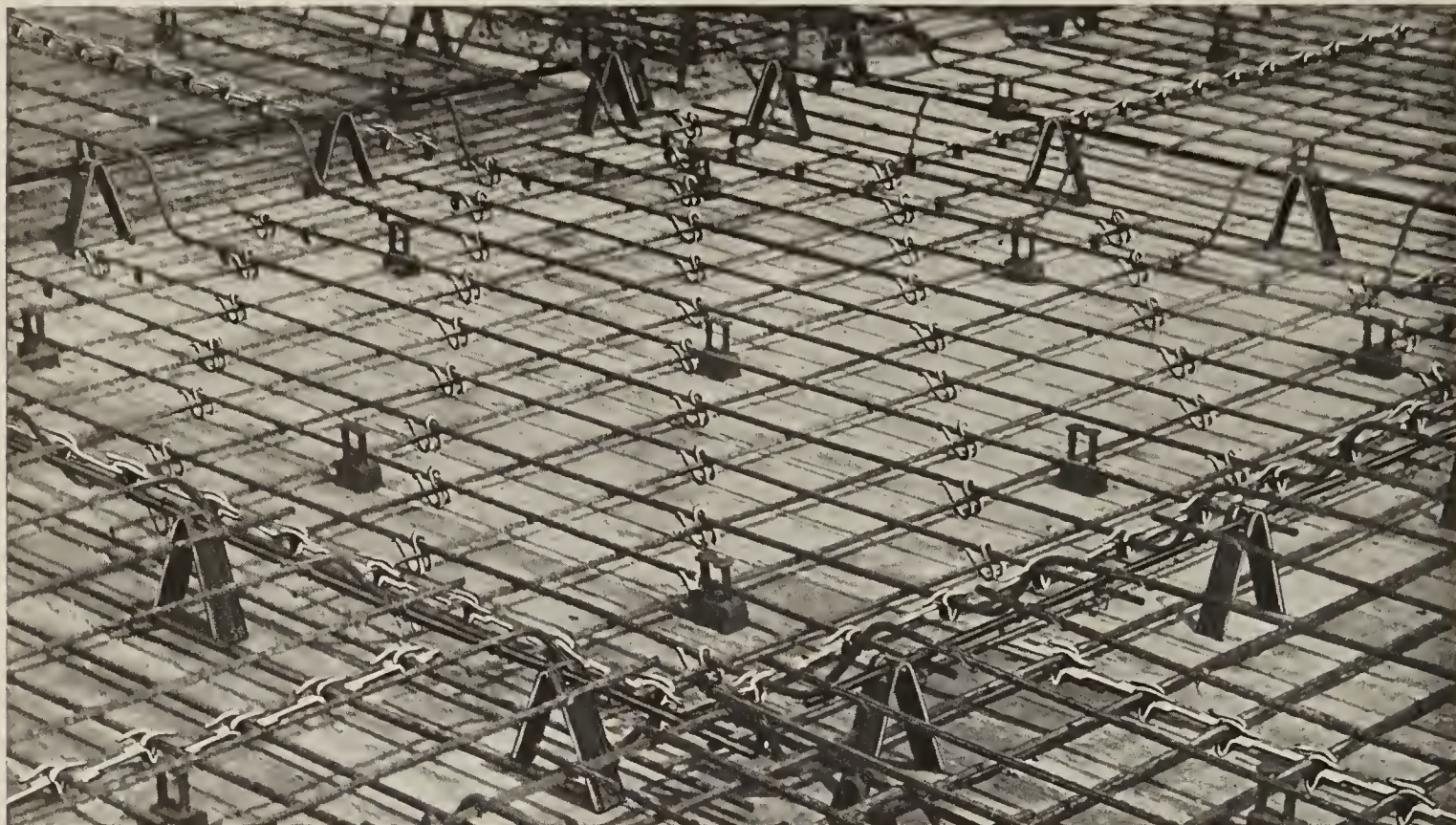
Lengths—Rolls:—Styles having longitudinals number 3 gauge or smaller made regularly in standard lengths 150 feet, 200 feet and 300 feet. Styles having longitudinals larger than number 3 gauge made regularly in straightened and cut sheets only.

Weights:—All above weights are based on a width of 60 inches measured from center to center of the outside or selvage longitudinal wires.

Triangle Wire Mesh

This type of mesh is used for same character of construction as designated above for Electric Weld Fabric. Some engineers specify triangle mesh by certain style numbers. We can furnish all standard types of Triangle Mesh. Detail information on areas, weights and size of rolls furnished on application.

We also carry in stock Concrete Clips; Hanging Wire, straightened, bent or in coils; Toggle, Beam, Floor and Hair-Pin Clips.



Correct and positive placement of steel in "two-way" Flat Slab design. Note Havemeyer Hy-Chairs and Ty-Chairs holding bars off forms. Havemeyer Securo Slab Spacers are correctly spacing and holding bars and No. 2 Havemeyer Bar-Tys are holding bars rigidly together at intersections. Havemeyer Inserts are placed and job is ready for the concrete—all steel securely in place

Havemeyer Spacing and Holding Devices

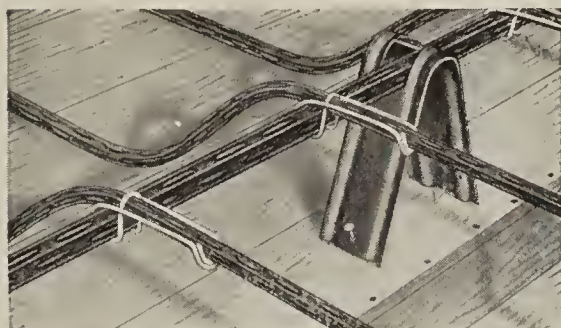
THE proper placing of reinforcing steel is of the utmost importance. Reinforcing bars must not only be properly placed in accordance with the engineer's designs, but it is equally important that they be held rigidly in place while the concrete is being poured. After the concrete is poured it is impossible to tell whether the steel is in its proper place or not, but the strength of the building depends entirely on the steel being placed in accordance with the engineer's plans.

While the concrete is being poured considerable pressure is brought against the steel due to tamping, screeding, etc. By using Havemeyer Supporting, Spacing and Tying Devices, the owner, architect or engineer is absolutely assured that the steel is being held rigidly in its correct position and that it will be in its correct position after the concrete is poured. These devices have been in use for

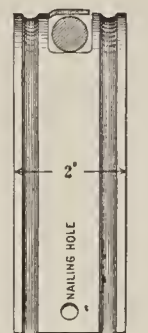
many years and have met with popular favor on all sides. By using these devices an architect or engineer will know that the steel is just where it should be and will be there when the building is finished. He knows that the floors, beams, girders, walls, etc., will carry safely their designed load. Havemeyer Beam Saddles, Slab Spacers and Hy-Chairs are made to order in our own shops to fill the requirements of each particular job. During construction work, the inspector can tell at a glance whether the steel is where it belongs.

Mechanical supporting and spacing devices are required by the building codes of many large cities and are specified today by leading architects and engineers all over the country. By using these devices the contractor places the steel very quickly and accurately, and the expense is very little, if any, more than the old-fashioned, slip-shod methods.

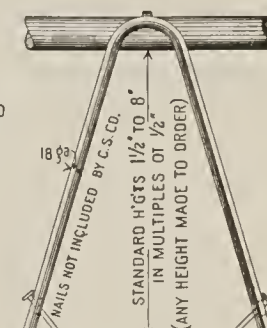
Havemeyer Hy-Chairs



THIS chair is used particularly on flat slab work for holding bars at any height off forms. It is made of very highest grade open hearth steel. The locking prong at the top keeps the bar in its position and prevents it from loosening. These chairs are provided with nailing holes so that they can be



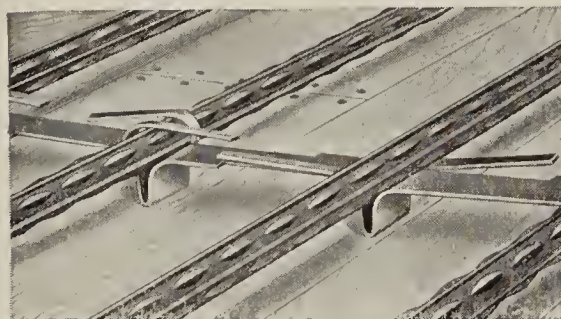
3/4" SQ. DEFORMED BAR, MAX. BAR THAT CHAIR WILL TAKE.



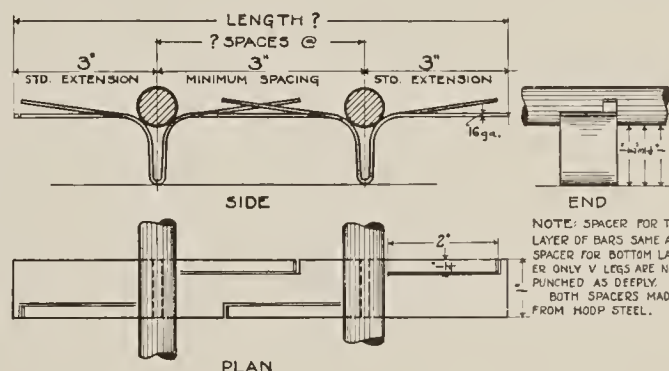
securely fastened to the forms if desired. The bead gives it additional strength. Hy-Chairs are shipped nested and crated and are made up on receipt of order. Prompt shipment can always be made according to specifications.

Havemeyer Securo Bar Spacers

THIS spacer is used for correctly spacing bars in slabs and at the same time holding bars the required distance off the forms. It is made from highest grade hoop steel. The locking arms are quickly wrapped around the bars, which prevents their being displaced during concreting. Securo Bar Spacers are made on receipt of order and prompt shipment can always be made according to specifications. They are shipped nested in bundles and are easily handled on the



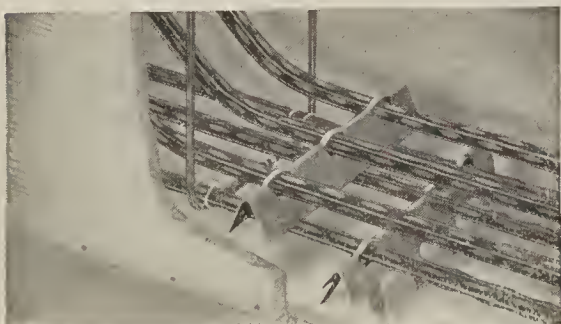
job. By using these spacers you are assured that the steel is correctly placed and will so remain while concrete is poured. The inspector can tell at a glance whether the steel is in its proper position.



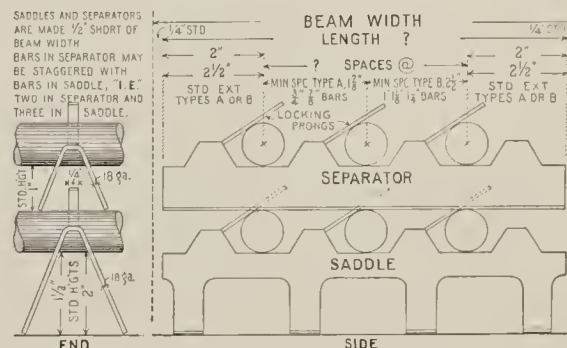
Havemeyer Beam Saddles and Separators

THESE devices are used to hold the bars at the required distance from the bottom of beams and girders. They are made from the highest grade steel, with locking arms which are easily closed. They can be attached to the bars before placing in the forms, and a complete unit assembled and dropped in the forms. If desired, the beam saddles can be placed in the bottom of the forms and the bars

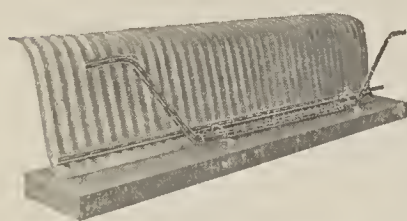
laid in the notches. Separators are used when two layers of bars are called for. The large openings at the bottom allow the concrete to flow freely, and no voids are formed. All beam saddles and separators are made up promptly upon receipt of order according to details. They are shipped crated and nested—the cheapest and best devices to accurately space and hold bars in beams and girders.



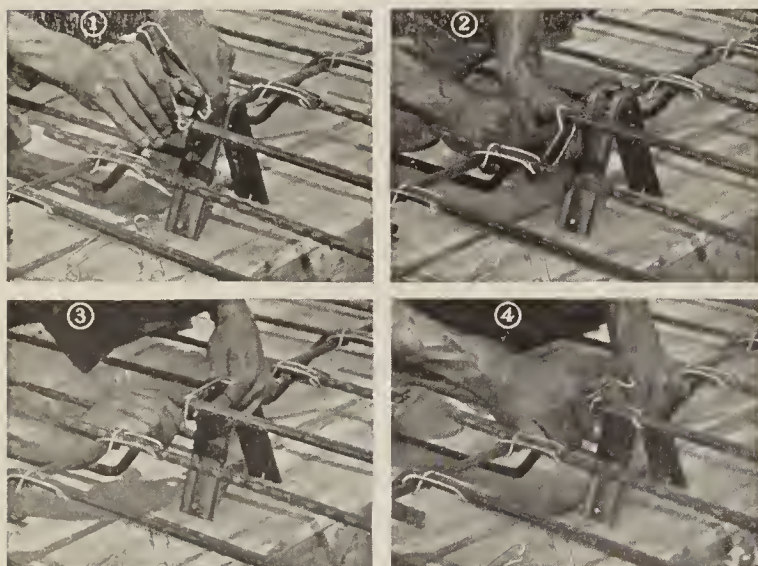
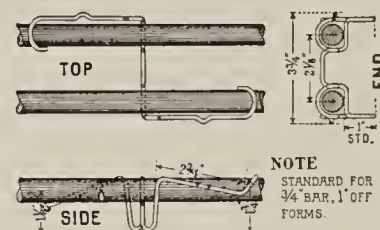
The devices shown on this page have been used for many years by leading architects, engineers and contractors, and have met with universal approval.



Havemeyer Easel Chairs



HAVEMEYER Easel Chairs are made of heavy spring wire and are used for supporting and spacing bars in a joist. They are quickly attached, and locking arms are easily sprung around the bars. The standard distance of the underside of bars from the forms is 1". Special sizes made to order. Carried in stock. Packed 500 chairs to a carton.



A No. 2 Bar-Ty, easily and quickly applied

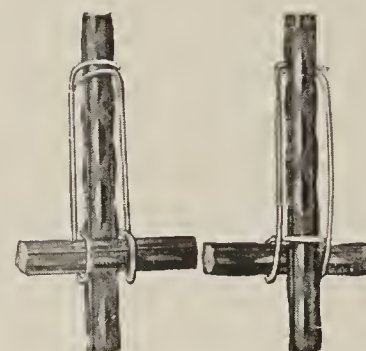
Havemeyer No.2 Bar-Tys

HAVEMEYER No. 2 Bar-Tys are made of the highest grade spring wire and are quickly wrapped and locked around intersecting bars. They are used for tying reinforcing steel at any point and are particularly valuable where vertical reinforcement is required, such as in walls,

dams, piers, columns, etc. These Bar-Tys form a positive lock that will resist tremendous pressure and can be placed very much quicker than soft wire applied with pliers.

Packed 1000 to the carton. The sizes tabulated herewith are carried in stock in all of our warehouses and can be shipped on receipt of order. Special sizes are made up as may be required.

When ordering give symbol designating combination of bars to be tied. Where various combinations are required, give the symbols for all (see tabulation herewith) giving quantity, as each and all cartons shipped will bear symbol letter distinctly marked, thus facilitating their use on the job.



Symbol.	Combination of Bars.
S	$\frac{3}{8}$ " x $\frac{3}{8}$ "
T	$\frac{3}{8}$ " x $\frac{1}{2}$ "
	$\frac{3}{8}$ " x $\frac{5}{8}$ "
U	$\frac{1}{2}$ " x $\frac{1}{2}$ "
	$\frac{1}{2}$ " x $\frac{5}{8}$ "
W	$\frac{1}{2}$ " x $\frac{3}{4}$ "
	$\frac{5}{8}$ " x $\frac{5}{8}$ "
	$\frac{5}{8}$ " x $\frac{3}{4}$ "
X	$\frac{1}{2}$ " x $\frac{7}{8}$ "
	$\frac{1}{2}$ " x 1"
	$\frac{5}{8}$ " x $\frac{7}{8}$ "
	$\frac{5}{8}$ " x 1"
Z	$\frac{3}{4}$ " x $\frac{3}{4}$ "
	$\frac{3}{4}$ " x $\frac{7}{8}$ "
	$\frac{3}{4}$ " x 1"

Havemeyer Ty-Chairs

THESE devices are very popular and are used to hold bars off the forms and at the same time tie the bars rigidly at their intersections. They are quickly snapped in place, and there is no danger of the steel being displaced during the concreting. It is the most economical method of tying and at the same time holding bars off the forms. Standard distance from underside of bars to forms is 1". Special sizes can be made up as required. Samples gladly furnished contractors on receipt of request for same.

No. 2.	No. 3-A.	No. 3.	No. 4.
$\frac{1}{4}$ " x $\frac{3}{8}$ "	$\frac{1}{2}$ " x $\frac{1}{2}$ "	$\frac{5}{8}$ " x $\frac{5}{8}$ "	$\frac{3}{4}$ " x $\frac{3}{4}$ "
$\frac{1}{4}$ " x $\frac{1}{2}$ "	$\frac{1}{2}$ " x $\frac{5}{8}$ "	$\frac{5}{8}$ " x $\frac{3}{4}$ "	$\frac{3}{4}$ " x $\frac{7}{8}$ "
$\frac{1}{4}$ " x $\frac{5}{8}$ "	$\frac{1}{2}$ " x $\frac{3}{4}$ "		$\frac{3}{4}$ " x 1"
$\frac{3}{8}$ " x $\frac{3}{8}$ "			$\frac{7}{8}$ " x $\frac{7}{8}$ "
$\frac{3}{8}$ " x $\frac{1}{2}$ "			$\frac{7}{8}$ " x 1"

Ty-Chairs are packed in cartons of 1000 and are carried in stock in the above sizes.

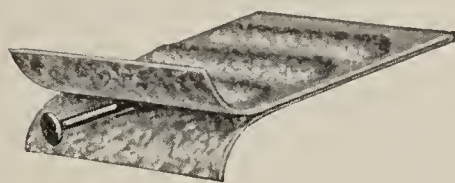


Used every 3rd intersection on small bars



Used at each intersection on large bars

Havemeyer Wall Plug



THIS Wall Plug is made from tight coat galvanized sheets with corrugations to provide a strong anchorage and is the most dependable wall plug on the market. Have-

meyer Wall Plugs are used for fastening furring strips on brick, block or tile construction. These furring strips are held in place firmly by virtue of the strong grip that this type of plug offers. When wall plugs are inserted between brick, block or tile, they are practically immovable.

We carry a stock of Havemeyer Wall Plugs in our warehouses and can make immediate shipment. Shipped in cartons, 500 to the carton.

Havemeyer Corner Bead Clip



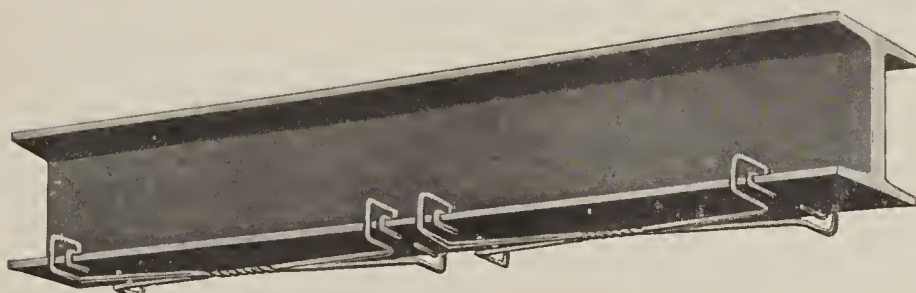
THIS Clip is made of sheet metal with the hump rolled into clip to fasten rigidly to the Corner Bead which facilitates erection as the Bead will not loosen. Nail holes are so placed as to enable the erector to always locate a bearing to attach clip.

These clips are for use only on the Havemeyer Plain Wing Bead and Bull Nose Bead, and are furnished when specifically ordered. Prices on Plain Wing and Bull Nose Bead do not include clips.

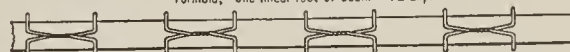
This extension clip is used mostly on tile or masonry walls, where it is necessary to provide an extension to the average width of wing on corner bead in order to secure an anchorage. Clips should be used about one foot apart on alternate sides of the bead to give proper support.

Shipped from any of our warehouses.

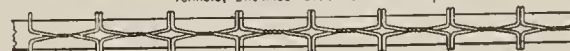
Havemeyer X-Tension Clips



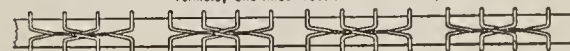
APPLICATION NO. 1, SPACED 12 INCHES, END TO END.
Formula, One lineal foot of beam = 1/2 clip.



APPLICATION NO. 2, PLACED END TO END.
Formula, One lineal foot of beam = one clip



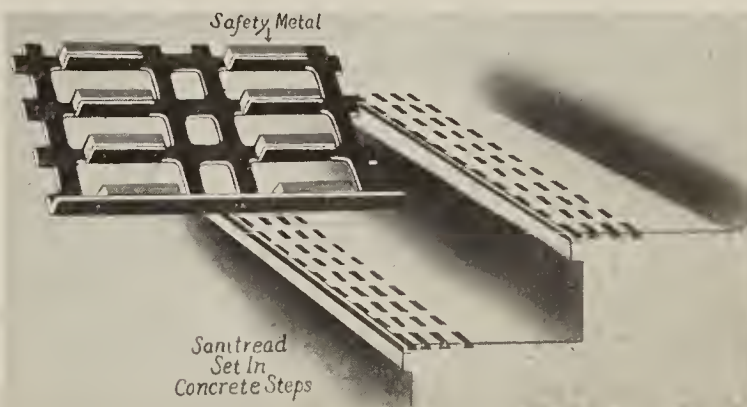
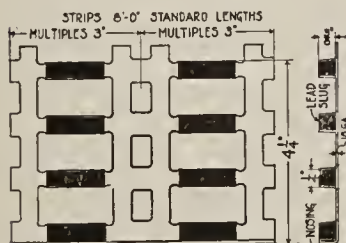
APPLICATION NO. 3, LAPPED CENTER TO CENTER.
Formula, One lineal foot of beam = one clip



HAVEMEYER X-Tension Clips are the best protecting devices on the market for fireproofing steel beams, girders and columns. Made from high-grade spring wire and are easily snapped to flange of beam. Havemeyer X-Tension Clips are stocked in two sizes: No. 1, 3" to 6" flange and No. 2, 7" to 10" flange. They are 12" long in place. In stock at all warehouses.

Havemeyer Sani-Tread

HAVEMEYER Sani-Tread is a combination of steel plate and lead slugs. The plate is punched with steel flanges that hold the lead slugs rigidly in place. Havemeyer Sani-Tread may be applied to any type of concrete or combination stair, platform or other surface, and has the advantage of being buried in the concrete on the top surface—offering a smooth though non-slip tread. Havemeyer Sani-Treads are sanitary and durable. Surfaces equipped with Sani-Treads can be easily cleaned as the treads are always flush with the surface.



Unlike most other treads there are no projections on which to trip and cause accidents. Sani-Treads are largely used on stairways of schools, libraries and industrial buildings. They are made in three sizes: 3", 3 leads wide; 4 1/4", 4 leads wide; 5 1/2", 5 leads wide. Prompt shipment from stock.

Havemeyer Inserts for Every Purpose

IN practically every factory or warehouse building it is necessary to hang from the ceilings shafting, motors, piping or other equipment. Inserts embedded in the concrete at the time of pouring, when properly placed, will meet any requirement. Too much attention cannot be given by the architect or engineer to the type of insert to be used, particularly in factory construction. Naturally, the size of the insert will depend upon the load to be carried and the type of the article which the insert is to carry.

In some factory buildings, the machinery and pipe layout can be planned before the building is erected, and in such cases an adjustable insert is not entirely necessary.

In many cases, however, the engineer specifies an insert which will allow a certain amount of adjustability. This not only gives more leeway in placing overhead equipment, but also makes allowance for future changes. Engineers frequently will place more inserts than are necessary to use at the time a building is erected in order to provide for any changes

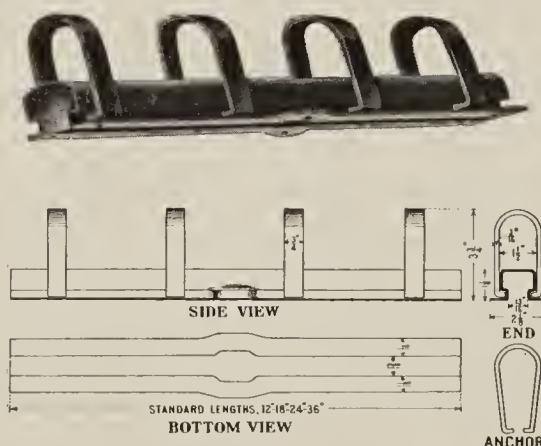
or additions in plant equipment which might be made at some future date. It is extremely difficult and very expensive to fasten equipment to a ceiling of a concrete building where sufficient inserts are not provided.

By spending a comparatively small amount of money on additional inserts, future requirements can be pretty well anticipated. Havemeyer Inserts are provided in three general types: "Y" Socket Inserts, which are tapped and threaded, and do not allow any adjustment; Dayton Malleable Inserts, which allow adjustment up to 2"; and the Slotted Inserts, made of pressed steel, which will give almost unlimited adjustment. Havemeyer Slotted Inserts have been very popular, particularly among automobile manufacturers, and many miles have been installed in some of the largest motor car plants in the country.

Safety is a most important factor in the use of inserts, as the failure of a single insert may result in serious damage and loss of life. All types of Havemeyer Inserts have been tested and will not fail.

Havemeyer Slotted Inserts

HAVEMEYER Slotted Inserts are adjustable over their entire length. They are made from 15 gauge sheet steel pressed into shape and in lengths of 12", 18", 24" and 36". Where a longer adjustability is required, the end caps can be removed and a continuous slot obtained. The standard type of insert uses a $\frac{3}{4}$ " bolt. If a smaller bolt is desired, washers can be easily inserted to hold $\frac{5}{8}$ " and $\frac{1}{2}$ " bolts. Inserts for $\frac{7}{8}$ " bolt can be furnished on order. Havemeyer Slotted Inserts have the bolt opening in the center, so the bolt can be placed on either end.



We would call particular attention to the method of anchorage, which is of utmost importance. Steel loops are anchored below the bolt runway, which gives it the maximum carrying strength. Havemeyer Slotted Inserts are provided with six nailing holes so that they can be securely fastened to the forms while the concrete is being poured, and there is no chance of their being displaced after they are set.

Havemeyer Slotted Inserts, using a $\frac{3}{4}$ " bolt, have been tested for 12,400 lbs.

We carry a complete stock of these inserts in our warehouses.

Havemeyer Malleable Inserts

HAVEMEYER Malleable Inserts are made in three types: Dayton Adjustable Insert No. 3, Dayton Adjustable Insert No. 5 and Havemeyer "Y" Socket Insert. These inserts are made from the highest grade malleable iron. They have been on the market for many years, have been thoroughly tested and always found dependable. Dayton Inserts are adjustable, as shown below, while the Havemeyer "Y" Socket Insert is threaded to receive a bolt and is not adjustable. The anchorage of the Dayton Inserts is in the form

of a loop, which allows reinforcing bars to be strung through the loops if additional anchorage is desired. The base surfaces of all Havemeyer Malleable Inserts are carefully machined so as to fit snugly on the forms, thus preventing any possible seepage of concrete. When using Dayton Inserts it is not necessary to use washers or other devices, and accordingly bolts can be readily inserted and removed. Shipments in any quantity can be made promptly. Detailed specifications of these inserts follow.



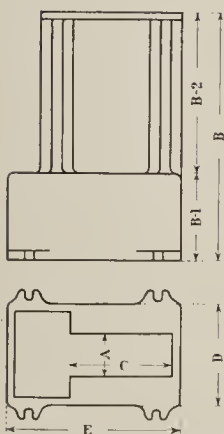
Dayton No. 3 Adjustable Insert



Dayton No. 5 Adjustable Insert



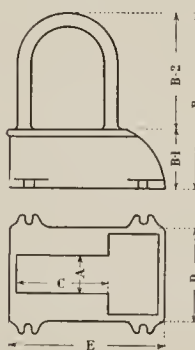
Havemeyer "Y" Socket Insert



Dayton No. 3 Adjustable Insert is made from the highest grade malleable iron, cast in one solid piece. Four nailing slots are provided on the outside so that it can be firmly nailed to the forms and kept in place during concreting. The key-hole slot not only allows adjustment of the bolt, but also the bolt can easily be re-

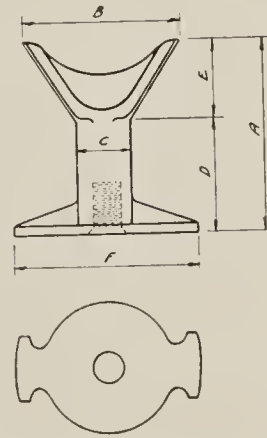
placed or removed whenever desired. This insert has been on the market for many years and has given universal satisfaction. Using a 3/4" bolt, this insert has been tested for 15,910 lbs. Carried in stock in the following sizes:

Bolt	A	B	B-1	B-2	C	D	E
1/4"	5/16"	2 1/4"	1 1/2"	1 3/4"	1 3/8"	3/4"	2"
1/2"	9/16"	3 1/4"	2 1/8"	2 3/8"	2"	1"	2 7/8"
3/8"	1 1/16"	3 3/4"	2 1/4"	2 1/2"	2"	1 1/2"	2 7/8"
1"	1 3/16"	4 1/4"	2 3/8"	2 5/8"	1 3/4"	1 3/4"	2 7/8"
1 1/8"	1 5/16"	4 3/8"	2 3/4"	2 7/8"	1 7/8"	1 7/8"	3"



The Dayton No. 5 Adjustable Insert is similar to the Dayton No. 3 Insert, except that it is lighter and consequently designed to carry a lighter load. The anchorage in the concrete is not as deep. It is made from one piece of highest grade malleable iron. Both Dayton No. 3 and Dayton No. 5 Inserts when placed on the forms will not interfere with the proper placing of reinforcement, as the reinforcement can be strung through the loops if desired. Dayton No. 5 Insert, using a 3/4" bolt, has been tested for 7,000 lbs. Dayton No. 5 Adjustable Inserts are carried in stock in the following sizes:

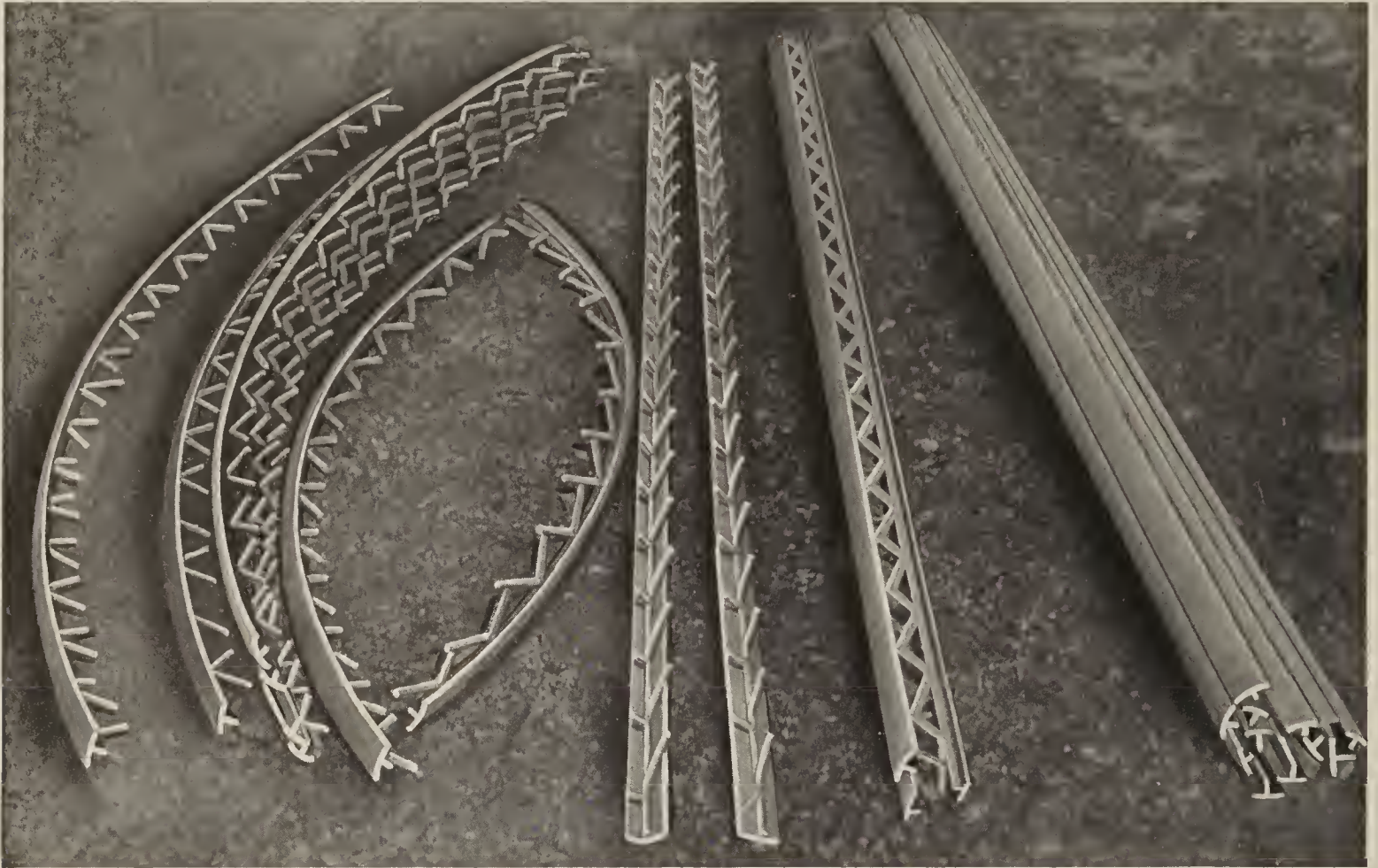
Bolt	A	B	B-1	B-2	C	D	E
3/8"	7/16"	2"	5/8"	1 3/8"	1 3/8"	3/4"	2 1/8"
1/2"	9/16"	2 3/8"	3/4"	1 5/8"	1 1/2"	1"	2 5/8"
3/4"	1 1/16"	2 3/4"	7/8"	1 7/8"	1 5/8"	1 1/4"	2 5/8"
1"	1 3/16"	3 1/8"	1"	2 1/8"	1 3/4"	1 1/2"	2 7/8"



Havemeyer "Y" Socket Inserts are cast in one piece from highest grade malleable iron. Four slots are provided in the base for nailing firmly to the forms. The spreading anchors are embedded sufficiently deep in the concrete to give a very strong grip. These inserts are

tapped and threaded for standard machine bolts. They are frequently used in the bottom of beams, girders and slabs, where adjustment is not required, also for piping, sprinklers, etc. Carried in stock in the following sizes:

Bolt	A	B	C	D	E	F
3/8"	2 1/8"	1 7/8"	1 1/16"	1 1/4"	7/8"	2 1/8"
1/2"	2 3/8"	2"	1"	1 3/8"	1"	2 1/8"
3/4"	2 1/2"	2 1/8"	1"	1 1/2"	3/4"	2 3/8"
1"	2 13/16"	2 1/4"	1 1/8"	1 3/4"	3/4"	2 1/2"



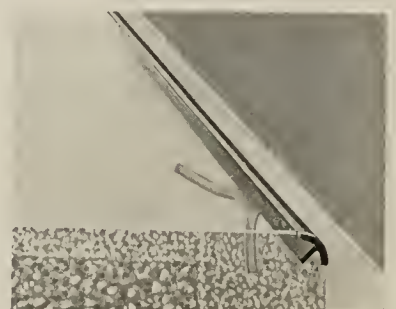
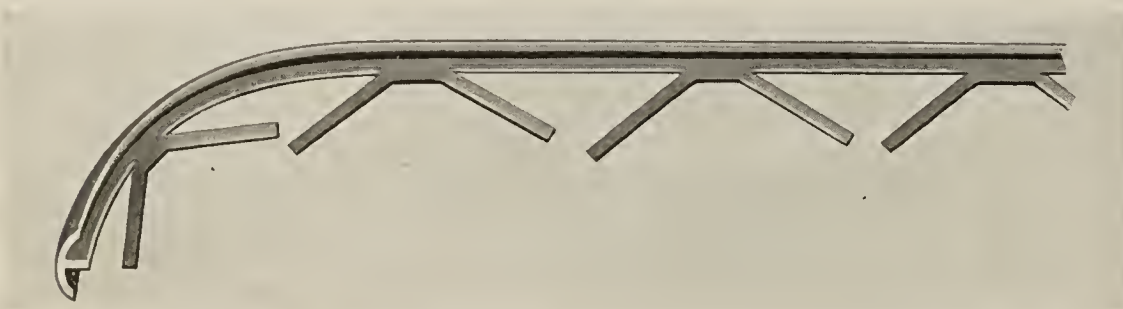
Havemeyer Round Nose Curb Bar showing bending and method of bundling for shipment

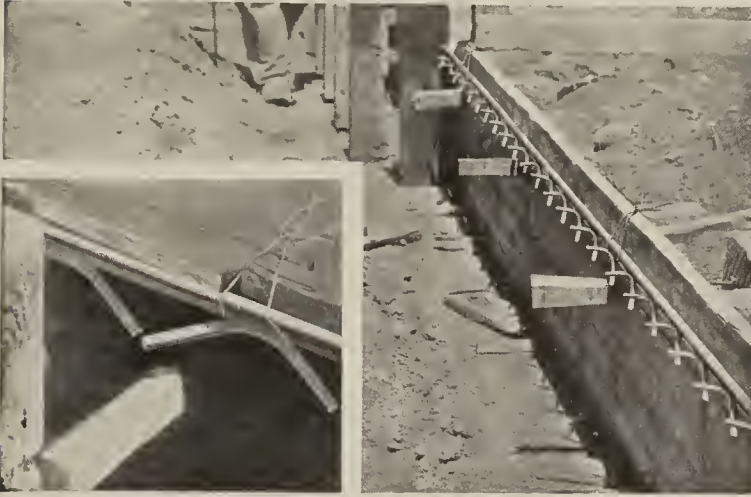
Havemeyer Round Nose Curb Bar

HAVEMEYER Round Nose Curb Bar meets every demand that a curb bar is called upon to fulfill. It is made from the very highest grade open-hearth steel. The anchors are sheared from the web and are an integral part of the bar. These anchors are staggered and are bent out from the center line of plane, so as to secure an exceedingly strong anchorage in the concrete curb. These anchors not only hold the bar firmly in place but also act as a preventative of cracks which frequently form in the concrete curb near the

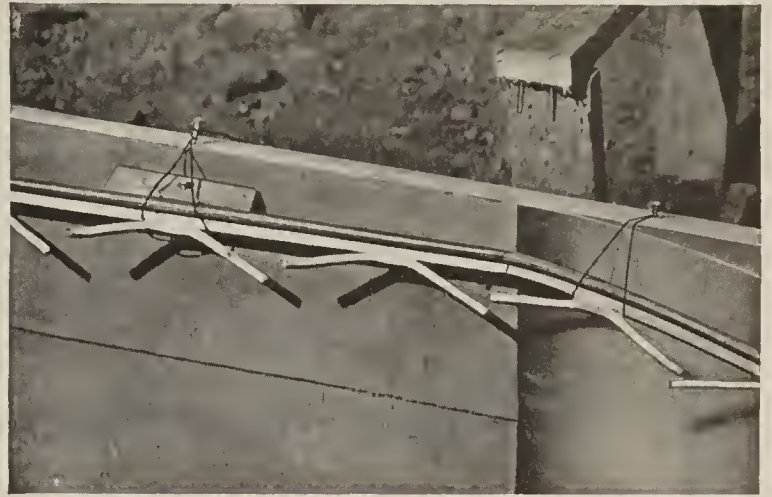
edge. The bar is rolled with a sharp edge so that no fillet is formed at this point when troweling takes place.

Havemeyer Curb Bars are very simple to install. The absence of a continuous web permits even and accurate bending without kinking. The bar is so bent that the plane of the 45 degree angle is maintained in order to be in harmony with the straight bar at point of tangent. All curb bars are galvanized and shipped in bundles. Carried in stock in 8', 10' and 12' lengths. We bend to any radius.

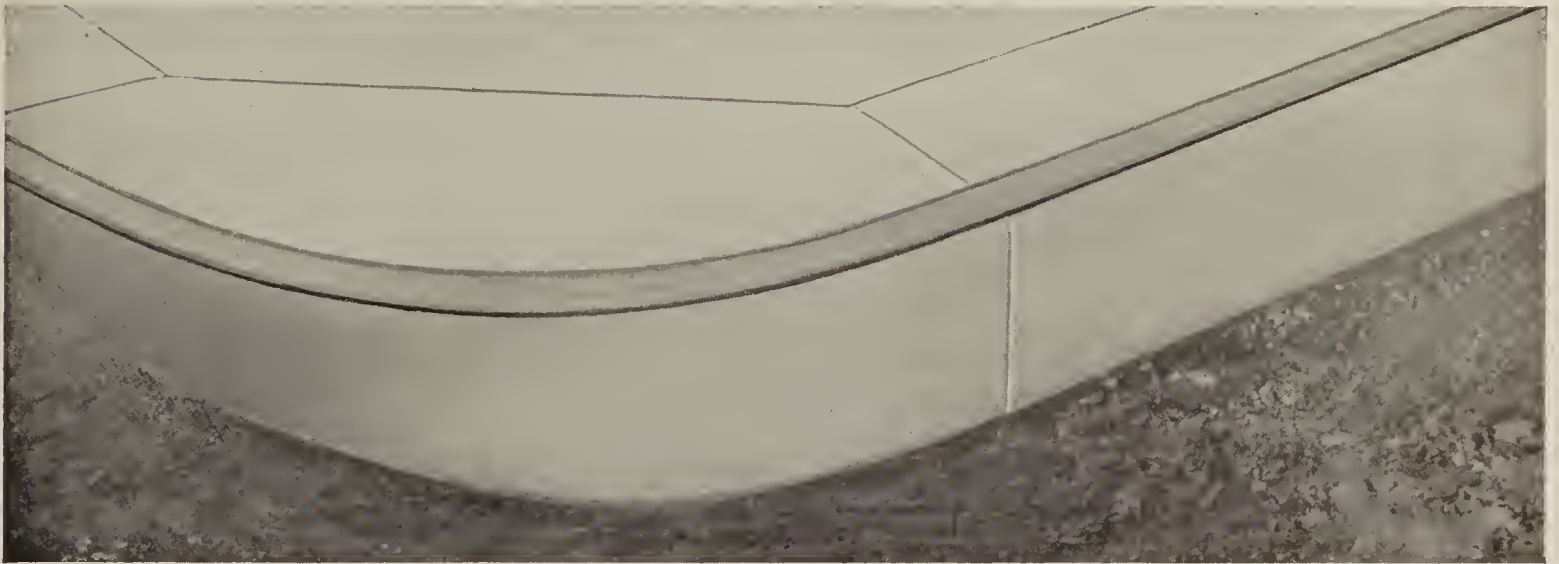




No installing frogs are needed—simply a piece of wood, a nail, and some soft wire



The absence of a continuous web permits even and accurate bending without kinking



Permanent protection—Havemeyer Round Nose Curb Bar

Havemeyer Angle Nose Curb Bar

HAVEMEYER Angle Nose Curb Bar is rolled from a $1\frac{1}{4}'' \times 1\frac{1}{4}'' \times \frac{3}{16}''$ angle of highest grade open-hearth steel. The anchors occur every six inches and extend into the concrete $2\frac{3}{4}''$. They are sheared and punched from the top leg. Also on the top leg are rolled three rows of lugs, which add to the

wearing quality and prevent slipping. This curb bar is particularly valuable for shipping platform edges, stair nosing, protection for corners of concrete columns and for any curb where a square edge angle is desired. Stocked in 10' lengths, galvanized, cut to length and bent as required.





Havemeyer Concrete Road Reinforcement

“REINFORCEMENT of concrete highways is the insurance for public good will.” Not only is this slogan literally true but it rests upon a firm foundation of practical experience and scientific fact.

Our methods of transportation are now undergoing a change and many secondary electric and steam railroads are being abandoned on account of competition from motor busses and trucks. This competition has been made possible by the widespread construction of hard surface highways during the last few years.

If our concrete pavements are to carry a heavy motor bus and truck traffic, and most of them do soon after construction, they must be

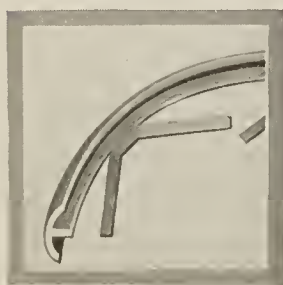
well reinforced with steel to insure a reasonable life free from excessive maintenance expense.

Experience and numerous traffic tests have shown the reinforced concrete pavement to be the economic type for modern heavy traffic under average conditions.

For light traffic where the structural strength of the paving slab is not so important, a moderate amount of steel reinforcement properly placed in the slab will completely eliminate cracking, reduce maintenance and insure a fine looking permanent construction.

Where an asphalt or other type wearing surface is desired, a reinforced concrete base of moderate thickness will not only greatly in-

*Havemeyer
Round Nose Curb Bar*



*Havemeyer Pressed Metal
Supporting Chair and Method of Holding Reinforcing Bars*



*Havemeyer
Angle Nose Curb Bar*





Showing the ease with which Havemeyer Bar-Tys are locked to Road Reinforcing Bars

crease the life of the wearing surface but it will prevent the formation of unsightly cracks in the pavement.

All these things are accomplished at a very small proportionate increase in cost over former methods.

To attain these desirable results in the most economical manner the Engineers of the Concrete Steel Company have developed a system of reinforcement for highways similar in many respects to that which is now universally used in reinforced concrete building construction.

More than 2,500 miles of pavements have been constructed with our reinforcement of many different types, and the durability and

serviceability of these reinforced highways insures the utmost in ultimate returns for road appropriations—low upkeep costs and more general satisfaction to the public.

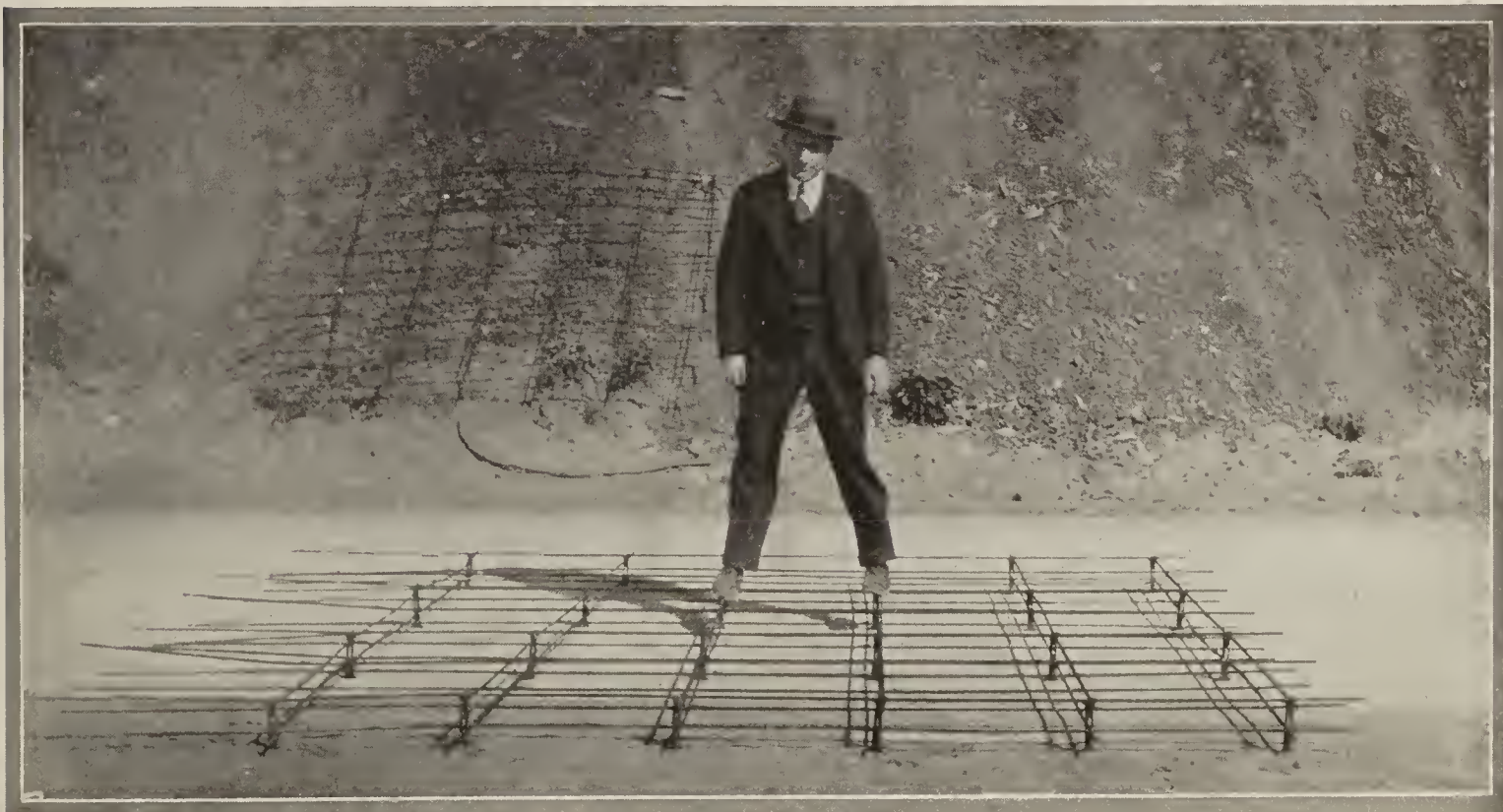
Our engineers have inspected a great deal of this work since completion and much has been learned as a result of wide experience under varying conditions during the past five years.

This data includes not only roads reinforced with Havemeyer reinforcement, but also roads in which no reinforcement was used, together with types of roads other than concrete.

This information is at the service of engineers and public works officials.

Write for our new Road Catalogue.

Havemeyer three-eighths inch deformed self-supporting reinforcement. The interlocked pressed metal chairs give this reinforcement its remarkable rigidity and enables the handling of sections with great ease and speed





Off to the job—a "mixed load" of Fireproofing Products leaving a Concrete Steel Company warehouse

Havemeyer Fireproofing Products

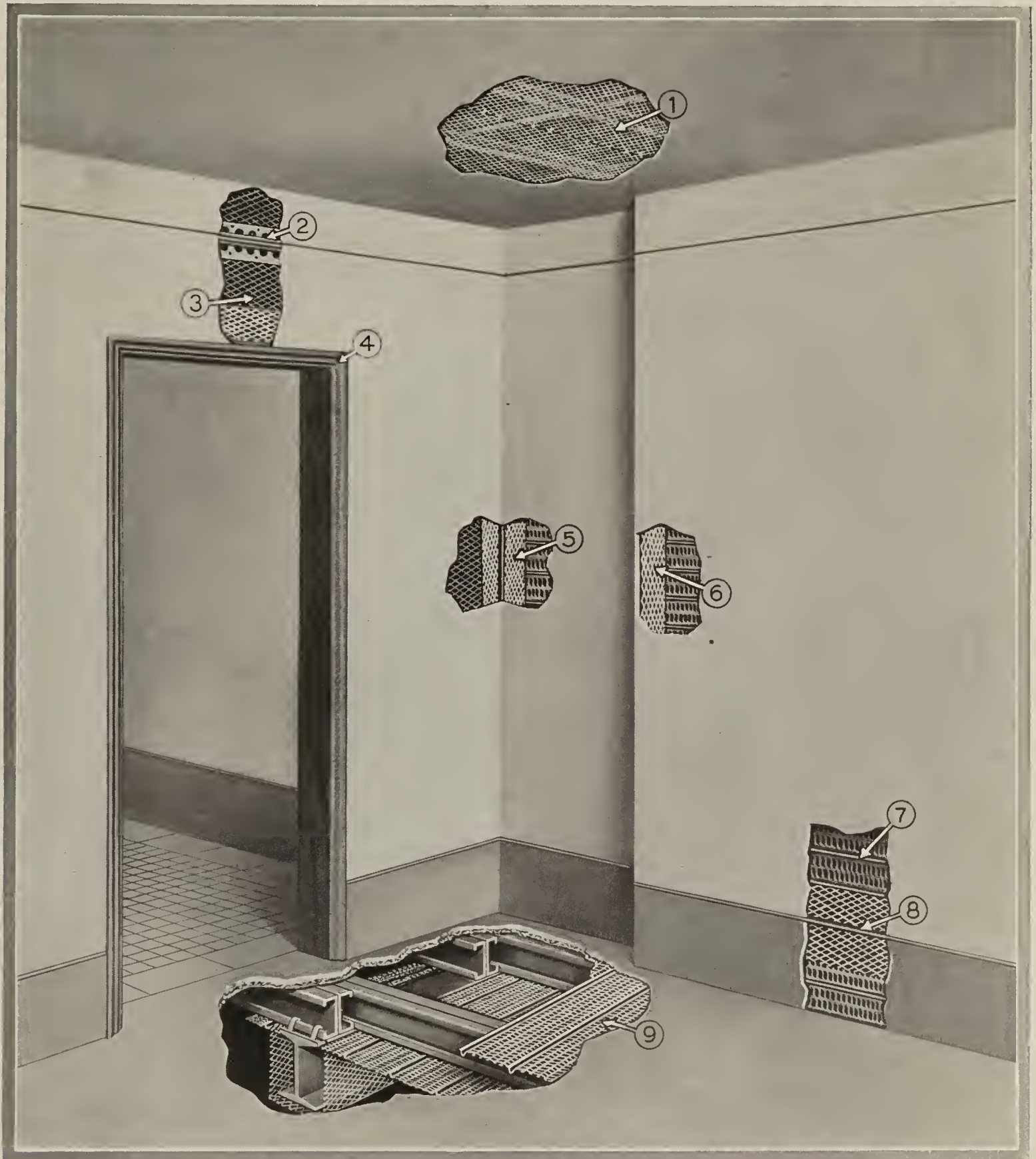
HAVEMEYER Fireproofing Products comprise a complete line of *metal lath, channels, angles and flats, corner beads, wire mesh, steel tile, expanded metal, metal lumber*, etc. The majority of these products are always kept on hand in our warehouses ready for immediate shipment. Whether you require immediate shipment or shipments over a period of time, we are in a position to give real service regardless of the quantity.

There is today an ever-increasing demand for these products, due to the awakening of the general public to the advantages of putting up buildings either fireproof or as near fireproof as possible, and using a type of construction which will reduce maintenance cost to a minimum. Metal lath is recognized today as the most fireproof base for plastering walls, ceilings and exteriors. By using metal

lath, not only is the fire risk greatly diminished, but cracks are practically eliminated and a much more substantial structure is obtained. While the initial cost may be slightly higher than other plastering bases, the advantages gained by using metal lath more than compensate for any extra expense. We carry various types of metal lath and would be pleased to furnish architects or contractors with full information as to the type best adapted for any particular structure.

It is of great advantage to the contractor to purchase all of his metal building products from one source. By so doing delays in delivery are avoided, economy effected in delivery costs, and responsibility centralized.

Some of the articles shown are carried only in our larger warehouses, as certain localities require particular materials not generally used.



View showing installation of Havemeyer Fireproofing Products

- | | |
|--|---|
| No. 1 Metal Lath Ceiling | No. 5 Havemeyer Expansion Inside Corner Bead |
| No. 2 Havemeyer Picture Mould | No. 6 Havemeyer Expansion Outside Corner Bead |
| No. 3 Havemeyer Key Lath | No. 7 Havemeyer Flat Rib Metal Lath |
| No. 4 Havemeyer Expansion No. 6 O.G., Door and Window Casing | No. 8 Havemeyer Expansion No. 3 Flush Base Screed |
| | No. 9 Havemeyer $\frac{3}{8}$ " Rib Lath and Metal Lumber |



Havemeyer Flat Lath

Havemeyer Metal Lath

METAL lath has long been used as a standard material for a plastering base. In fireproof buildings it is used as a plastering base around steel beams, girders, columns and other structural material. With the plaster properly applied, it forms an absolute fireproofing protection for the structural members.

Metal lath is also extensively used for walls, ceilings and partition work, using angles or channels as studding. A partition down to two inches thick can be made which is sound-proof, fireproof and of great strength.

Another use for metal lath is in the fireproofing of residences, garages, barns and all types of non-fireproof buildings. When used in connection with wood studding on walls and ceilings it forms, in connection with the plaster, a very valuable fire-resisting crack-proof surface.

On the exterior of all types of wooden buildings, metal lath with properly applied stucco of cement will make the building fire-resisting from exterior causes and at the same time avoid expensive painting.

Havemeyer Metal Lath is manufactured in various types—the type to be used on each

building operation depending on the character of construction.

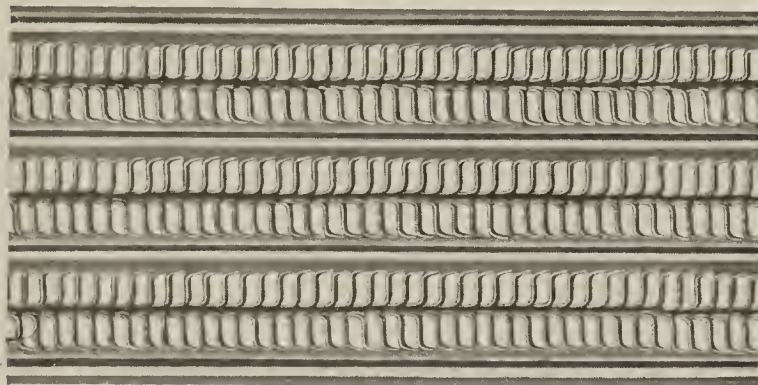
Havemeyer Flat Lath is an expanded lath made from sheet steel, painted or galvanized, copper-bearing steel or pure iron. The openings in the mesh are of small size, thus effecting an economy in plaster and providing a strong key. The paint used on this lath was selected after a long series of tests made under different climatic conditions in various parts of the United States and is the best preservative that has yet been found for metal lath.

Where metal lath is used in damp climates or in exposed places, galvanized, copper-bearing or pure iron lath is recommended.

All sheets are 24 x 96 inches, squared corners, packed 9 sheets of 16 yards to the bundle in the following weights:

Steel Painted.....	2.2 lbs., 2.5 lbs., 3.0 lbs., and 3.4 lbs., per sq. yd.
Galvanized	2.5 lbs., and 3.4 lbs. per sq. yd.
Copper Bearing.....	2.5 lbs., and 3.4 lbs. per sq. yd. (3.0 lbs. to order).
Pure Iron.....	2.5 lbs., and 3.4 lbs. per sq. yd. (3.0 lbs. to order).

Corrugated or self-furring lath furnished in weights and metals indicated above.



Havemeyer Flat Rib Lath

Havemeyer Flat Rib Lath

Havemeyer Flat Rib Lath has many attractive and economical features and is largely used where speed and saving of plaster are essential.

The longitudinal Ribs, or beads, $\frac{1}{2}$ inch wide, $1\frac{3}{4}$ inch center to center, are inter-connected at $\frac{1}{4}$ inch intervals by stays or strands. These strands in turn are reinforced strongly at their centers by a stiffening member.

Some advantages of Havemeyer Flat Rib Lath:

Permits scratching in and doubling back from same scaffold—practically two coat work—a big economy in labor and mortar.

Permits wider spacing of supports—thus saving material and labor.

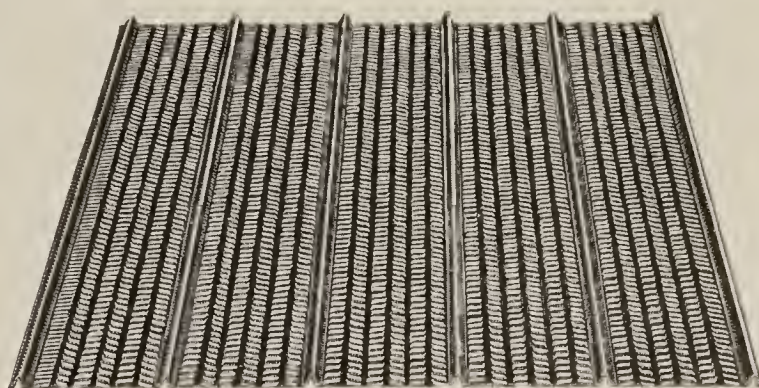
Sheets are square-edged—no loss in lapping.

No jagged points to jeopardize quick handling.

Maximum economy and all the desired crackproof and fireproof qualities of ordinary metal lath.

Specifications—Havemeyer Flat Rib Lath

FLAT RIB LATH					
Cut from Open Hearth Steel Sheets					
	Weight per Sq. Yd.	Size of Sheets	No. Sheets in Bdle.	Sq. Yds. per Bdle.	Weight per Bdle.
Painted	2.75	24 x 96"	9	16	44 lbs.
	3.20	24 x 96"	9	16	51 lbs.
	3.50	24 x 96"	9	16	56 lbs.
Galvanized	3.60	24 x 96"	9	16	57 lbs.
Above also furnished cut from Coppered Rust Resisting Metal. All painted lath is heat treated and reannealed after cutting, thus giving the metal longer life and greater tensile strength.					



Havemeyer $\frac{3}{8}$ " Rib Lath

Havemeyer $\frac{3}{8}$ " Rib Lath

Havemeyer $\frac{3}{8}$ " Rib Lath is very rigid and strong due to the *rib expansion* between the heavy $\frac{3}{8}$ " ribs spaced 4.8 inches on centers.

This lath is used where a wider spacing of studs is desirable and economical. The lath should be placed with ribs facing the studs and at right angles to them.

Havemeyer $\frac{3}{8}$ " Rib Lath is used economically with Havemeyer Steel Tile and Steel Lumber.

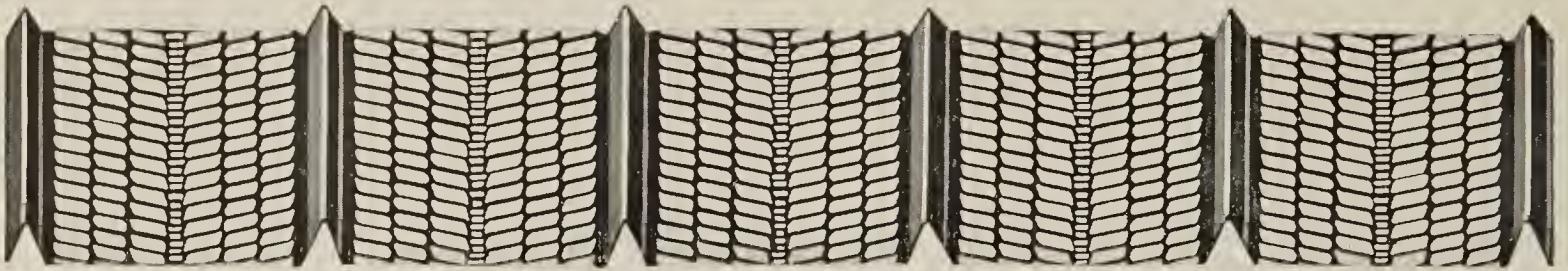
This lath is manufactured from open hearth sheets, from galvanized sheets and from rust-resisting coppered metal.

Havemeyer $\frac{3}{8}$ " Rib Lath is easy to erect, as the outside ribs nest closely, leaving an even surface for plastering. This lath is easy to handle as there are no sharp edges or projections.

Havemeyer Galvanized $\frac{3}{8}$ " Rib Lath, weighing 3.6 lbs. per square yard, is a special product, and its use is recommended in place of 4.00 lb. steel lath, sold at about the same price.

Specifications—Havemeyer $\frac{3}{8}$ " Rib Lath

$\frac{3}{8}$ " RIB LATH					
Cut from Open Hearth Steel Sheets					
	Weight per Sq. Yd.	Size of Sheets	No. Sheets in Bdle.	Sq. Yds. per Bdle.	Weight per Bdle.
Painted	2.75	24 x 96"	9	16	44 lbs.
	3.50	24 x 96"	9	16	56 lbs.
	4.00	24 x 96"	9	16	66 lbs.
Galvanized	3.60	24 x 96"	9	16	57 lbs.
Above also furnished cut from Coppered Rust Resisting Metal. All painted lath is heat treated and reannealed after cutting, thus giving the metal longer life and greater tensile strength.					



Havemeyer 3/4" Ribplex

Havemeyer 3/4" Ribplex

HAVEMEYER Ribplex is formed from a single sheet of steel. The longitudinal ribs 3/4" in height, are cold-rolled, which greatly increases the tensile strength and elastic limit. The metal between the ribs is expanded, with the strands on edge, which gives a stiff surface to work on, and is a distinct advantage over many other types.

Havemeyer 3/4" Ribplex has six ribs to a sheet spaced 4.8 inches center to center. Each

sheet covers 24 inches in width. The standard lengths carried in stock at the mill for prompt shipment are 7, 8, 9, 10, 11 and 12 feet.

Havemeyer 3/4" Ribplex compared with similar products, offers heavier gauge weight for weight and lower cost gauge for gauge. Havemeyer 3/4" Ribplex is used largely for roof construction, partitions, floor slabs, outside walls, etc.

Full construction details will be gladly furnished on application.

Safe Total Loads for Roofs and Floors in Pounds Per Square Foot

Thickness of Concrete	Gauge of Ribplex	Resisting Moment per Foot of Width	SPAN IN FEET							
			3	4	5	6	7	8	9	10
2"	28	3140	291	164	104	73				
	26	3720	346	194	124	85	63			
	24	4370	405	228	146	101	74			
2 1/2"	28	4070	376	211	135	94	69	53		
	26	4850	449	253	162	112	82	62		
	24	6360	588	331	211	147	108	81		
3"	28	5030	465	261	168	116	85	65		
	26	5930	550	309	198	137	101	77	61	
	24	7820	722	406	200	180	133	101	84	
3 1/2"	28	5950	550	310	198	137	101	77	64	
	26	7060	654	368	237	163	120	92	72	
	24	9300	861	484	310	214	158	121	96	
4"	28	6910	640	360	230	160	117	90	71	
	26	8160	756	425	272	188	139	106	84	68
	24	10760	997	561	359	249	183	140	110	90

For safe live loads deduct weight of slab.
Stress in Steel 16,000 lbs. per sq. inch.
Stress in Concrete 650 lbs. per sq. inch.
Ratio or Moduli of Elasticity=15.
Distance of center of gravity above bottom of Plate=.21 inches.

Total Sectional Areas

28 gauge=.1406 sq. inch per foot width.
26 gauge=.1688 sq. inch per foot width.
24 gauge=.2250 sq. inch per foot width.

Weight per Sq. Foot

28 gauge=.50 lbs.
26 gauge=.60 lbs.
24 gauge=.75 lbs.

Bending Moment $\frac{WL^2}{10}$ for $\frac{WL^2}{12}$ add 20%; for $\frac{WL^2}{8}$ deduct 20% from above loads.

Max. Span With Wet Concrete

Slab Thickness	Gauge of 3/4" Ribplex	Maximum Span
2"	28	3'3"
2"	26	3'6"
2"	24	4'0"
2 1/2"	28	3'0"
2 1/2"	26	3'3"
2 1/2"	24	3'8"
3"	28	2'9"
3"	26	3'0"
3"	24	3'4"
3 1/2"	28	2'6"
3 1/2"	26	2'9"
3 1/2"	24	3'0"
4"	28	2'3"
4"	26	2'6"
4"	24	2'9"

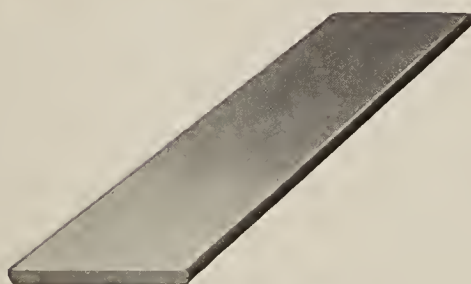
In using 3/4" Havemeyer Ribplex as centering in concrete roofs and floors no supports are necessary except for long spans or extra thickness. The table above shows limits above which supports should be used until the concrete sets.



Havemeyer Sheet Lath

HAVEMEYER Sheet Lath is perforated and not expanded. This lath makes an exceptionally rigid background and is adapted particularly as a back for Tile construction in bathrooms, etc. Weight, 4.5 pounds per square yard; sheets, 18" wide by 96" long; 1.33 square yards per sheet; 9 sheets per bundle; 12 square yards per bundle.

Havemeyer Furring Channels—Hot Rolled and Cold Rolled—Flats and Angles



WE CARRY in our warehouses a complete stock of hot rolled channels, angles and flats required by the fireproofing trade, together with standard cold rolled channels, and can make combined shipments of lath, corner bead and other fireproofing products, as may be required. This is a distinct advantage to the contractor, as it brings the various materials required in his work at one time, avoiding unnecessary delay caused by dealing with more than one house.

Havemeyer furring shapes can be furnished as follows:

Channels—Hot Rolled

Size	Wt. per ft.
$1\frac{1}{2} \times \frac{1}{2} \times \frac{1}{8}$	1.12
$1\frac{1}{2} \times \frac{3}{16} \times \frac{1}{8}$	1.05
$1 \times \frac{3}{8} \times .108$60
$1 \times \frac{3}{8}$5
$\frac{3}{4} \times \frac{5}{16} \times .15$40
$\frac{3}{4} \times \frac{5}{16}$37

Angles—Hot Rolled

$1\frac{1}{2} \times 1\frac{1}{2} \times \frac{1}{8}$	1.23
$1\frac{1}{2} \times 1\frac{1}{2} \times \frac{3}{16}$	1.80
$1 \times 1 \times \frac{1}{8}$80

Flats—Hot Rolled

$1\frac{1}{2} \times \frac{1}{8}$638
$1 \times \frac{3}{16}$638
$1 \times \frac{1}{8}$425

Special furring sections other than above supplied on short notice.

Weights specified are subject to usual mill variation.

Channels—Cold Rolled

$\frac{3}{4}$ "	weight 276 lbs.
1"	" 332 lbs.
$1\frac{1}{2}$ "	" 442 lbs.
2"	" 580 lbs.

Stock lengths — 12', 14', 16', 18' and 20'.

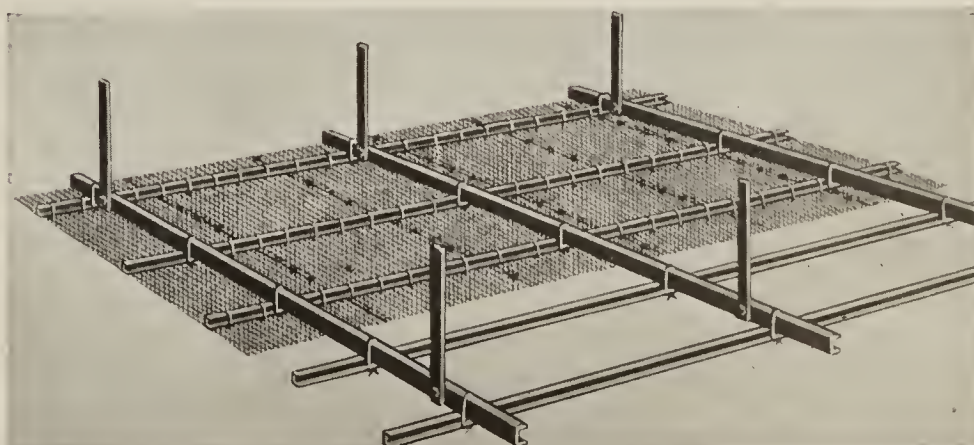
$1\frac{1}{2}$ " to 2" channels contain 10 pieces to bundle; all narrower sizes 20 pieces to bundle.

36,000 lbs. a min. carload.

Perforated Cold Rolled Channel

We can supply Perforated Cold Rolled Channels in same lengths as our standard cold rolled channels, and price for same will be 75 cents per 1000 ft. more. Sizes furnished are as follows:

$1\frac{1}{2}$ " wide	Leg. $\frac{3}{8}$ " high
2" wide	Leg. $\frac{7}{16}$ " high



Havemeyer Channels in Suspended Ceiling Construction. Wire Hangers Instead of Flats May Be Used

Approved Metal Lath Specifications Using Havemeyer Products

Wood Stud and Joist Construction

For Partitions

Havemeyer Flat Lath, for studs with a maximum spacing of 16 inches on centers, use lath weighing 2.5 lbs. per square yard.

Havemeyer $\frac{3}{8}$ " Rib Lath, for studs with a maximum spacing of $19\frac{1}{2}$ inches on centers, use lath weighing not less than 2.5 lbs.; for studs with a maximum spacing of 24 inches on centers, use lath not less than 3.0 lbs.

Havemeyer Flat Rib Lath, for studs with a maximum spacing of $19\frac{1}{2}$ inches on centers, use lath weighing not less than 3.0 lbs.; for studs with a maximum spacing of 24 inches on centers, use lath not less than 3.5 lbs.

For Ceilings

Havemeyer Flat Lath, for joists with a maximum spacing of 16 inches on centers, use lath weighing not less than 3.0 lbs. per square yard.

Havemeyer $\frac{3}{8}$ " Rib Lath, for joists with a maximum spacing of $19\frac{1}{2}$ inches on centers, use lath weighing not less than 3.0 lbs.; for joists with a maximum spacing of 24 inches, use lath not less than 3.5 lbs.

Havemeyer Flat Rib Lath, for joists with a maximum spacing of $19\frac{1}{2}$ inches on centers, use lath weighing not less than 3.0 lbs.; for joists with a maximum spacing of 24 inches, use lath not less than 3.5 lbs.

Back-Plastered Metal Lath Stucco Construction

Havemeyer Flat Lath, for studs with a maximum spacing of 16 inches on centers, use lath weighing not less than 3.4 lbs. per square yard.

Havemeyer $\frac{3}{8}$ " Rib Lath, for studs with a maximum spacing of 16 inches on centers, use lath weighing not less than 3.5 lbs. per square yard.

Havemeyer Flat Rib Lath, for studs with a maximum spacing of 16 inches on centers, use lath weighing not less than 3.5 lbs. per square yard.

(Pure Iron, Copper Bearing or Galvanized preferred)

Stucco on Metal Lath over Sheathing

Havemeyer Flat Lath, use lath weighing not less than 3.4 lbs. per square yard.

(Pure Iron, Copper Bearing or Galvanized preferred)

Metal Stud Partitions (Solid or Hollow)

Havemeyer Flat Lath, for studs with a maximum spacing of 12 inches on centers, use lath weighing not less than 2.2 lbs. per square yard; for studs with a maximum spacing of 16 inches on centers, use lath weighing not less than 2.5 lbs. per square yard.

Havemeyer $\frac{3}{8}$ " Rib Lath, for studs with a maximum spacing of $19\frac{1}{2}$ inches on centers, use lath weighing not less than 2.5 lbs. per square yard; for studs with a maximum spacing of 24 inches on centers, use lath weighing not less than 3.0 lbs.; for studs with a maximum spacing of 30 inches on centers, use lath weighing not less than 3.5 lbs.; for studs with a maximum spacing of 36 inches on centers, use lath weighing not less than 4.0 lbs.

Havemeyer Flat Rib Lath, for studs with a maximum spacing of $19\frac{1}{2}$ inches on centers, use lath weighing not less than 3.0 lbs.; for studs with a maximum spacing of 24 and 30 inches on centers, use lath weighing not less than 3.5 lbs.

Wall Furring

Havemeyer Flat Lath, for studs with a maximum spacing of 12 inches on centers, use lath weighing not less than 2.2 lbs. per square yard; for studs with a maximum spacing of 16 inches on centers, use lath weighing not less than 2.5 lbs.

Havemeyer $\frac{3}{8}$ " Rib Lath, for studs with a maximum spacing of $19\frac{1}{2}$ inches on centers, use lath weighing not less than 2.5 lbs. for studs with a maximum spacing of 24 inches on centers, use lath weighing not less than 3.0 lbs.; for studs with a maximum spacing of 30 inches, use lath weighing not less than 3.5 lbs.; for studs with a maximum spacing of 36 inches, use lath weighing not less than 4.0 lbs.

Havemeyer Flat Rib Lath, for studs with a maximum spacing of $19\frac{1}{2}$ inches on centers, use lath weighing not less than 3.0 lbs.; for studs with a maximum spacing of 24 and 30 inches on centers, use lath weighing not less than 3.5 lbs.

Attached Ceilings Clipped to Steel Floor Beams or Suspended Less Than 6 Inches Below Terra Cotta Floors

Havemeyer Flat Lath, for Furring Channels with a maximum spacing of 12 inches on centers, use lath weighing not less than 3.0 lbs. per square yard; for Furring Channels with a maximum spacing of 16 inches on centers, use lath weighing not less than 3.4 lbs.

Havemeyer $\frac{3}{8}$ " Rib Lath, for furring channels with a maximum spacing of $19\frac{1}{2}$ inches on centers, use lath

weighing not less than 3.0 lbs. per square yard; for furring channels with a maximum spacing of 24 inches on centers, use lath weighing not less than 3.5 lbs.; for furring channels with a maximum spacing of 30 inches on centers, use lath weighing not less than 4.0 lbs.

Havemeyer Flat Rib Lath, for furring channels with a maximum spacing of $19\frac{1}{2}$ inches on centers, use lath weighing not less than 3.0 lbs. per square yard; for furring channels with a maximum spacing of 24 inches on centers, use lath weighing not less than 3.5 lbs.

Attached Ceilings Under Concrete Joists and Floors Constructed With Removable Metal Tiles, Domes or Pans

$\frac{3}{4}$ " Channels shall be attached to hangers parallel to the joists. Such channels shall be spaced not to exceed 26 inches on centers.

$\frac{1}{4}$ " Pencil Rods to be attached transversely.

Havemeyer Flat Lath, Pencil Rods with a maximum spacing of $11\frac{3}{4}$ inches on centers, use lath weighing not less than 3.0 lbs. per square yard; Pencil Rods with a maximum spacing of $15\frac{3}{4}$ " on centers, use lath weighing not less than 3.4 lbs.

Havemeyer $\frac{3}{8}$ " Rib Lath, Pencil Rods may be eliminated on the above construction using 3.0 lb. lath on $19\frac{1}{2}$ inch centers.

Havemeyer Flat Rib Lath, Pencil Rods may be eliminated on the above construction using lath weighing not less than 3.2 lbs. on $19\frac{1}{2}$ inch centers.

Attached Ceilings Under Concrete Joists and Floors, Constructed with Permanent Metal Tiles, Domes or Pans

Havemeyer Flat Lath, Hangers shall be spaced on 4 foot centers in both directions and not to exceed 2 foot centers along runner channels when $\frac{3}{4}$ " runner channels are used weighing not less than 276 lbs. per 1000 lineal feet.

Runner Channels shall be spaced not to exceed 4 feet on centers.

Furring Channels shall consist of $\frac{3}{4}$ " Cold or Hot Rolled weighing not less than 276 lbs. per 1000 lineal feet and shall be spaced 12 inches on centers for 3.0 lb. lath and 16 inches on centers for 3.4 lb. lath.

Havemeyer $\frac{3}{8}$ " Rib Lath, for Channels spaced on $19\frac{1}{2}$ inch centers, use lath weighing not less than 3.0 lbs.; for channels spaced 24 inches on centers, use lath weighing not less than 3.5 lbs.; for channels spaced on 30 inch centers, use lath weighing not less than 4.0 lbs.

Havemeyer Flat Rib Lath, for Channels spaced on $19\frac{1}{2}$ inch centers, use lath weighing not less than 3.0 lbs.; for channels spaced on 24 inch centers, use lath weighing not less than 3.5 lbs.

Beams and Cornices

Havemeyer Flat Lath, where brackets are spaced 12 inches on centers, use lath weighing not less than 2.5 lbs.; where brackets are spaced 16 inches on centers, use lath weighing not less than 3.0 lbs.

Columns and Pilasters

Havemeyer Flat Lath, where vertical members of framing are spaced 12 inches on centers, use lath weighing not less than 2.5 lbs.; where vertical members of framing are spaced 16 inches on centers, use lath weighing not less than 3.0 lbs.

Havemeyer $\frac{3}{8}$ " Rib Lath, where vertical members of framing are spaced $19\frac{1}{2}$ inches on centers, use lath weighing not less than 2.5 lbs.; where vertical members of framing are spaced 24 inches on centers, use lath weighing not less than 3.0 lbs.; where vertical members of framing are spaced 30 inches on centers, use lath weighing not less than 3.5 lbs.

Havemeyer Flat Rib Lath, where vertical members of framing are spaced $19\frac{1}{2}$ inches on centers, use lath weighing not less than 3.0 lbs.; where vertical members of framing are spaced 24 inches on centers, use lath weighing not less than 3.5 lbs.

Corner and Jamb Reinforcement in Block Partition Construction

Use strips of lath weighing not less than 2.2 lbs.; each strip being 12 inches wide, this strip being bent to fit the corners to prevent the cracking of plaster.

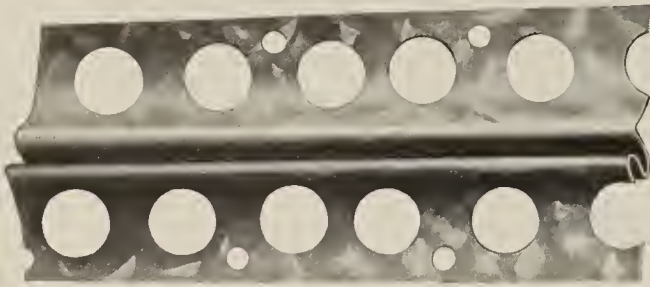
Metal Lath in Steel Joist Construction

Havemeyer Flat Lath, for the upper side of steel joists with a maximum spacing of 12 inches, use lath weighing not less than 3.0 lbs.; with a maximum spacing of 16 inches, use lath weighing not less than 3.4 lbs.

Havemeyer $\frac{3}{8}$ " Rib Lath, for the upper side of steel joists with a maximum spacing of 24 inches on centers, use lath weighing not less than 4.0 lbs.; for the underneath side of steel joists with a maximum spacing of $19\frac{1}{2}$ inches, use lath weighing not less than 3.0 lbs.; for steel joists with a maximum spacing of 24 inches, use lath weighing not less than 3.5 lbs.; for steel joists with a maximum spacing of 30 inches, use lath weighing not less than 4.0 lbs.

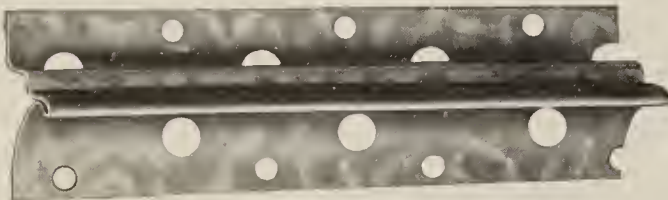
Havemeyer Flat Rib Lath, on the underneath side of steel joists with a maximum spacing of $19\frac{1}{2}$ inches on centers, use lath weighing not less than 3.0 lbs.; for steel joists with a maximum spacing of 24 inches, use lath weighing not less than 3.5 lbs.

Havemeyer Corner Beads and Wall Tie



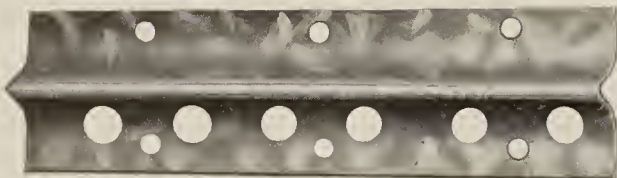
Havemeyer Concealed Metal Picture Mold

Fabricated from Tight-Coat Galvanized Open-Hearth Steel. Furnished in lengths of 10 or 12 feet, packed 1000 or 1008 feet to the crate, respectively. Shipping weight approximately 255 lbs. per 1000 feet, crated.



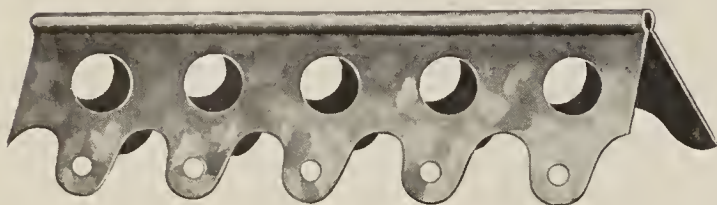
Havemeyer Curved Point Base Screed

Fabricated from Tight-Coat Galvanized Open-Hearth Sheets. Furnished in lengths of 10 and 12 feet, packed 1000 and 1008 feet to the crate respectively, shipping weight 225 lbs. per 1000 feet, crated.



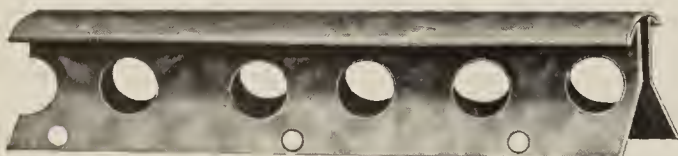
Havemeyer Plain Base Screed

Fabricated from Tight-Coat Galvanized Open-Hearth Sheets. Furnished in lengths of 10 and 12 feet, packed 1000 and 1008 feet to the crate respectively. Shipping weight 140 lbs. per 1000 feet, crated.



Havemeyer Scallop Edge Corner Bead

Furnished in lengths of 6, 7, 8, 9, 10 and 12 feet; made from Tight-Coat Galvanized Open-Hearth Steel. Packed ten pieces of uniform length to the bundle; crated approximately 500 and 1000 feet. Shipping weight approximately 220 lbs. per 1000 feet, crated.



Havemeyer Bull Nose Bead

Furnished in lengths of 5, 6, 7, 8, 9, 10 and 12 feet, cut from Tight-Coat Galvanized Open-Hearth Steel. Shipping weight approximately 290 lbs. per 1000 feet, crated; approximately 1000 feet to the crate.



Havemeyer Wing Corner Bead

Furnished in lengths of 6, 7, 8, 9, 10 and 12 feet; made from Tight-Coat Galvanized Open-Hearth Steel. Weight approximately 200 lbs. per 1000 feet, crated. Packed approximately 500 and 1000 feet to the crate.



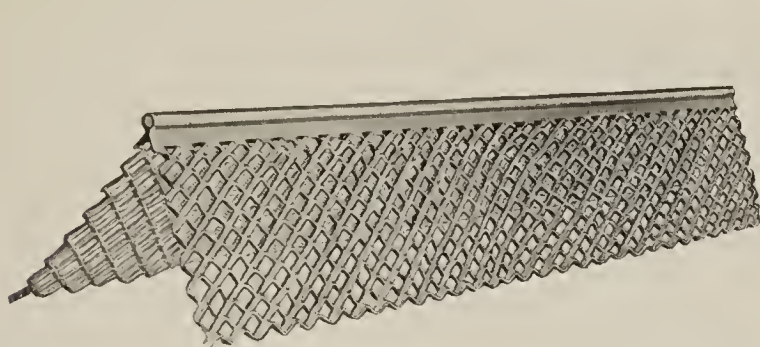
Havemeyer Galvanized Wall Tie

Angular corrugations over-lap one another, forming semi-tubular ridges which increase in strength with every wall strain. Flat Non-Stretch Center. Packed 1000 to the box.

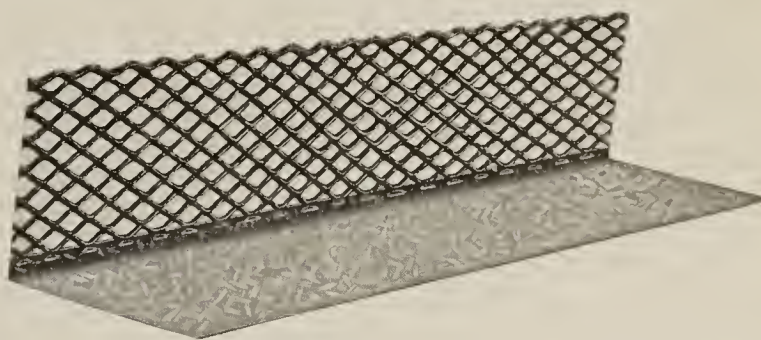
Havemeyer Rail Corner Bead

Made from galvanized sheets. Weight approximately 180 lbs. per 1000 feet. Stock lengths: 6, 7, 8, 9 and 10 feet. One clip furnished for each foot of bead, shipped separately.





Havemeyer Expansion Corner Bead for outer or exposed angles. Fabricated from Tight Coat Galvanized Open-Hearth Sheets. Lengths of 6, 7, 8, 9, 10, 11 and 12 feet. Weight per 1000 feet, 230 lbs., crated.



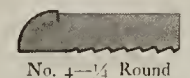
Havemeyer No. 7 Expansion Flashing, fabricated from Tight Coat Galvanized Open-Hearth Sheets. Lengths of 7½ and 12 feet. Weight per 500 feet, 175 lbs., crated.

Havemeyer Expansion Products

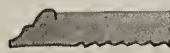
EXPANSION products shown here have many very important advantages. These products are all made from one piece of galvanized metal. The expansion portion provides a permanent bond which eliminates any possibility of cleavage and shrinkage cracks which usually occur with other types of beads and trim.

Most types of metal casing provide no grip hold for the plaster, and consequently, as the plaster dries, it slips away from the metal and cleavage cracks are almost certain to show along the lines where wall and casing meet. The tight juncture of wall and casing or bead formed by the reinforcement provided by this expansion feature adds greatly to the sanitary conditions found in these types of expansion products.

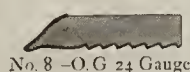
The initial cost is surprisingly low compared with the cost of wood casings and the installation cost is much lower than other similar types of products.



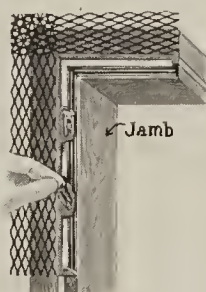
No. 4—¼ Round



No. 6—O. G.



No. 8—O. G. 24 Gauge



A



B



C

Expansion Casing Details.

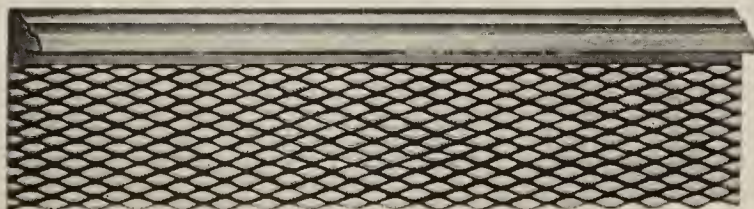
A—Showing Under Side of Clip. B—No. 6, O. G. One-Piece Mitre. C—No. 4, ¼-Round One-Piece Mitre.

The small openings in the expansion wings are of peculiar advantage lending greater reinforcement and economy of plaster.

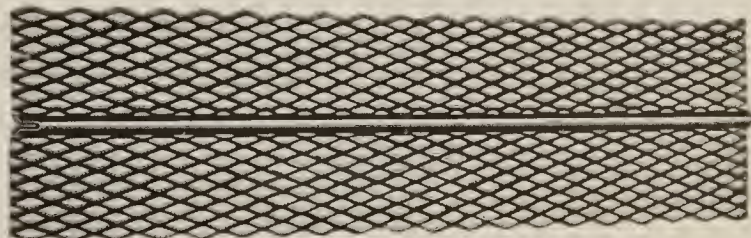
These products can also be furnished in zinc and copper.

By using Havemeyer No. 7 Expanded Metal Flashing, the danger of cracking of exterior stucco around doors, windows and other openings is eliminated. Water cannot leak in between casings and the stucco where Havemeyer No. 7 Expansion Flashing has been used. The solid metal wing on one side prevents this, while on the other side the expanded metal wing, with web-like bond, fastens the plaster or stucco permanently to the frame work.

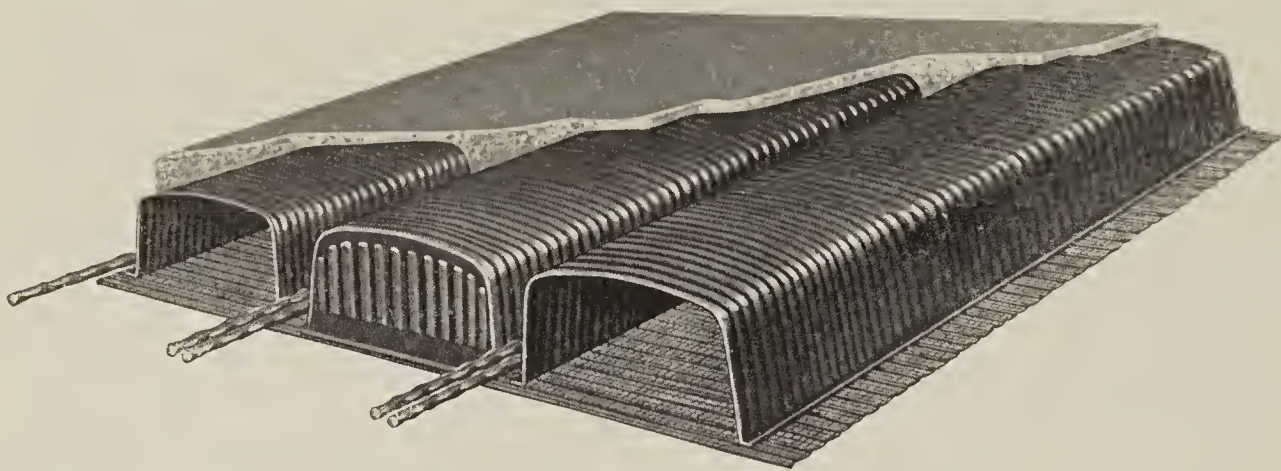
In both the Havemeyer Expansion Corner Bead and the Havemeyer Expansion Flashing great economies in time are effected as compared with erection under old methods. They can be wired, stapled, nailed or stuck to any kind of wall construction without the use of clips. Large stocks are carried at all warehouses ready for immediate shipment.



Havemeyer No. 6, O. G. Expansion Casing, fabricated from Tight Coat Galvanized Open-Hearth Sheets. Lengths of 6, 7½, 8, 9, 10 and 12 feet. Weight per 500 feet, 175 lbs., crated.



Havemeyer No. 3 Expansion Flush Base Plastering Screed, fabricated from Tight Coat Galvanized Open-Hearth Sheets. Lengths of 10 and 12 feet, crated 1000 and 1008 feet respectively. Weight per 1000 feet, 230 lbs., crated.



Havemeyer Steel Tile

HAVEMEYER Steel Tile are light corrugated steel forms used in conjunction with reinforced concrete for floor construction.

Steel Tile floors eliminate useless concrete, reduce dead weight and increase live load capacity.

They are cheaper on certain types of construction than wooden forms, particularly where light loads are required. They can be removed after concreting if desired.

Havemeyer Steel Tile is made of No. 26, 22 and 20 gauge Steel with deep stiffening corrugations across the top and in the sloping sides. Each supporting edge is finished with a flange which prevents loss of concrete during the pouring operation. They are made in depths of 4", 6", 8", 10", 12" and 14" and in lengths of 30" and 36". Havemeyer Steel Tile are 20" wide across the bottom. They are also furnished single and double tapered, the latter tapering from 20 inches at one end to 16 inches at the other. Tapered Tile are made in 36" lengths only. It is sometimes desirable to have narrower Tile where the area to be covered is not an exact multiple of the regular 20-inch Tile. For this condition we furnish Tile in 12 and 16-inch widths in all the standard depths. These narrower widths are not supplied in single or double tapered form.

There are some engineers and architects who want a deep rib corrugation. This we can furnish on order. Methods of construction, safe loads, etc., will be the same as for standard Tile.

In some cases, for the sake of economy, a greater space between the joists is desirable than is furnished by our standard 20-inch Tile. Where this condition exists we can furnish Tile 25 inches wide which will produce joist 29 to 30½ inches on centers as compared with 24 to 25½ on centers with our standard Tile construction. Safe loads and other data on the 25-inch Havemeyer Tile for any condition will be supplied upon request.

Large stocks of Havemeyer Steel Tile are carried at all branch warehouses and are shipped *nested* in compact bundles, easy to handle in transit or on the job. They require but small storage space and entail no losses through breakage.

Where necessary, end caps can be furnished for regular or tapered Havemeyer Steel Tile.

Shipping Weights of Havemeyer Steel Tile.

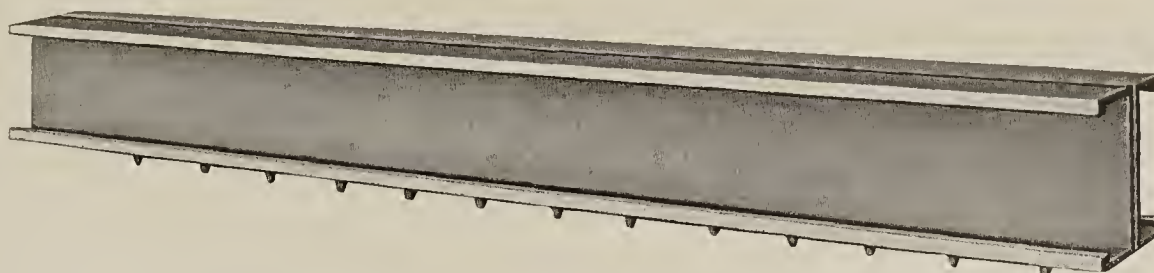
For Tile per 100 lineal feet. For End Caps per 100 pieces.

Type	Width	Gauge	4"	6"	8"	10"	12"	14"
			High	High	High	High	High	High
Standard	20"	26	175	198	219	242	267	290
Standard	20"	22	291	330	365	403	445	483
Standard	20"	20	353	403	448	495	548	594
Deep Rib	20"	26	Not Made	219	248	266	295	324
End Caps	20"	28	63	81	103	119	139	158

Tile 12" and 16" wide and end caps for same are figured as being same weight as 20" Tiles of same gauge.

Removable Steel Tile

We can furnish in some of the larger cities a removable steel tile, the type and dimensions being adapted to local conditions. An inquiry to our nearest district sales office will bring you full information.



Havemeyer Metal Lumber

HERE are certain types of buildings where Havemeyer Metal Lumber should be used because it is economical, practical and easy to erect. There is a decided tendency today to construct buildings as near fireproof as possible. The use of Havemeyer Metal Lumber combined with other Havemeyer fireproof products, such as Metal Lath, Corner Bead, Channels, Steel Tile, etc., are important factors in this type of construction.

By the use of Havemeyer Metal Lumber lighter loads are developed, resulting in a saving throughout the building.

Lower costs for transportation and less space required for storing at site.

Less labor and limited equipment required by contractor in the operation.

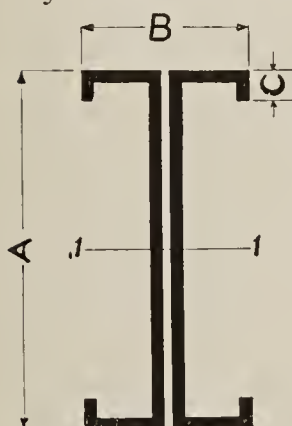
Increases speed of construction in winter. Havemeyer Metal Lumber is made from uniform strength pressed steel. The complete joists or studs receive a heavy coat of rust resisting paint, before shipment.

Havemeyer Metal Lumber is made in "Standard" and "Special" sections. Standard Metal Lumber sections are made of steel .072 to .090 inches thick in standard designs. Metal Lumber sections made of steel .120 inches in thickness, are designated as "Special" and used largely for headers and trimmers and in places where conditions call for increased strength.

Standard Metal Lumber sections may be furnished in any desired length, subject only to shipping and erection limitation.

Special sections made of metal .120 inches in thickness cannot be formed to advantage in lengths greater than 16' 8" for joists 4 to 10 inches in depth, or 12' 6" for joists 11 and 12 inches in depth.

All "Standard" Metal Lumber Studs may be pronged both sides for the attachment of lath, and joists may be pronged at the lower flanges. "Special" material is too heavy to prong satisfactorily, but holes may be punched for attachment of lath by wiring.



Sections and Properties of Standard "I" Joists

Depth A	Flange Dimensions B	Flange Dimensions C	Wt., Lbs., per Lineal Foot	Thick- ness of Metal in. In.	Thick- ness of Web, In.	Area of Sec., Sq. In.	Moment of Inertia	Axis 1—1 Radius of Gyration	Section Modulus
4	3	1/2	3.7	.072	.144	1.08	2.60	1.552	1.30
5	3	1/2	4.2	.072	.144	1.22	4.38	1.895	1.75
6	3	1/2	4.7	.072	.144	1.37	6.90	2.244	2.30
7	3 1/2	5/8	5.5	.072	.144	1.62	11.20	2.629	3.20
8	4	5/8	6.1	.072	.144	1.80	16.80	3.055	4.20
9	4	3/4	7.0	.075	.150	2.06	23.85	3.403	5.30
11	4 1/2	3/4	8.0	.078	.156	2.38	33.25	3.738	6.65
10	4 1/2	3/4	9.5	.086	.172	2.80	46.20	4.062	8.40
12	4 1/2	3/4	10.5	.090	.180	3.10	60.00	4.399	10.00



Sections and Properties of Standard Channel Joists

Depth A	Flange Dimensions B	Flange Dimensions C	Wt., Lbs., per Lineal Foot	Thick- ness of Metal in. In.	Area of Sec., Sq. In.	Moment of Inertia	Axis 1—1 Radius of Gyration	Section Modulus
4	1 1/2	1/2	1.85	.072	0.54	1.30	1.552	0.65
5	1 1/2	1/2	2.10	.072	0.61	2.19	1.895	0.88
6	1 1/2	1/2	2.35	.072	0.69	3.45	2.244	1.15
7	1 3/4	5/8	2.75	.072	0.81	5.60	2.629	1.60
8	2	5/8	3.05	.072	0.90	8.40	3.055	2.10
9	2	3/4	3.50	.075	1.03	11.93	3.403	2.65
10	2 1/4	3/4	4.00	.078	1.19	16.63	3.738	3.33
11	2 1/4	3/4	4.75	.086	1.40	23.10	4.062	4.20
12	2 1/4	3/4	5.25	.090	1.55	30.00	4.399	5.00



Havemeyer Copper Steel Basement Windows

STEEL basement windows have today superseded wooden frames and sash, due to their decided advantages in durability, neatness, lighting and ventilation, and protection of property. They unquestionably add to the house a good deal of home value as well as sales value. Steel basement windows, when made of copper steel, will last indefinitely, are neat looking, both from outside and inside, and allow a greater volume of light—approximately 80% more—based on the size of the opening, as compared with the old-fashioned wooden sash.

As to the cost, they cost no more than wooden sash, and in fact are cheaper, when you consider labor in fitting, installing and painting wooden sash. Steel Sash comes all ready to set in the masonry, and no fitting is necessary.

Havemeyer Basement Windows are made from highest grade copper steel.

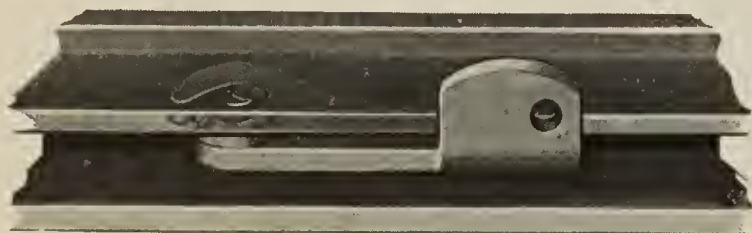
The frame is manufactured from one piece of heavy rolled copper steel.

It is the stiffest frame on the market and cannot get out of alignment.

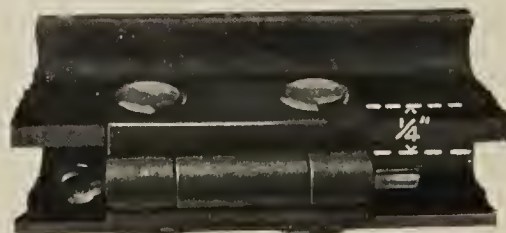
Holes are provided in the frame for bolts to fasten screens.

The lock is positive and safe. The lock has a cam action, drawing the ventilator tight against the frame. Muntin bars are T section, solidly riveted to frame of ventilator.

Riveted jamb bar strips give a line for the mason to work to, both inside and outside the foundation. These wide bar strips provide ample anchorage and clearance for ventilator to prevent jamming against the masonry.



Havemeyer Cam Section Burglar-proof Lock draws ventilator firmly against frame



Heavy hinges, with removable spring pins, permit easy removal of ventilators for glazing

Ventilator is hung by extra heavy hinge with spring pin offset from frame $\frac{1}{4}$ " to give ample clearance. This prevents binding on masonry, so often found in other sash. Hinge allows sash to be easily removed for glazing.

Single weathering and integral drip—no rain, snow or wind can get through.

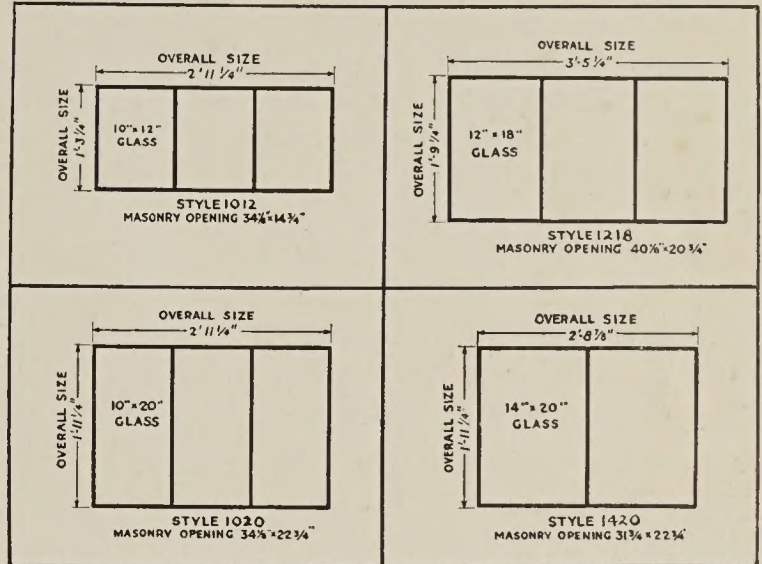
Glazing clips are supplied attached to each sash in a small cloth bag.

Two pounds of putty will glaze either a 1012 or 1420 window, while $2\frac{2}{3}$ pounds of putty will glaze a 1218 or 1020 window. The cost of glazing, including glass, putty and labor, for styles 1012 and 1420 is approximately 80 cents per window. This cost for styles 1218 and 1020 is approximately \$1.00 per window.

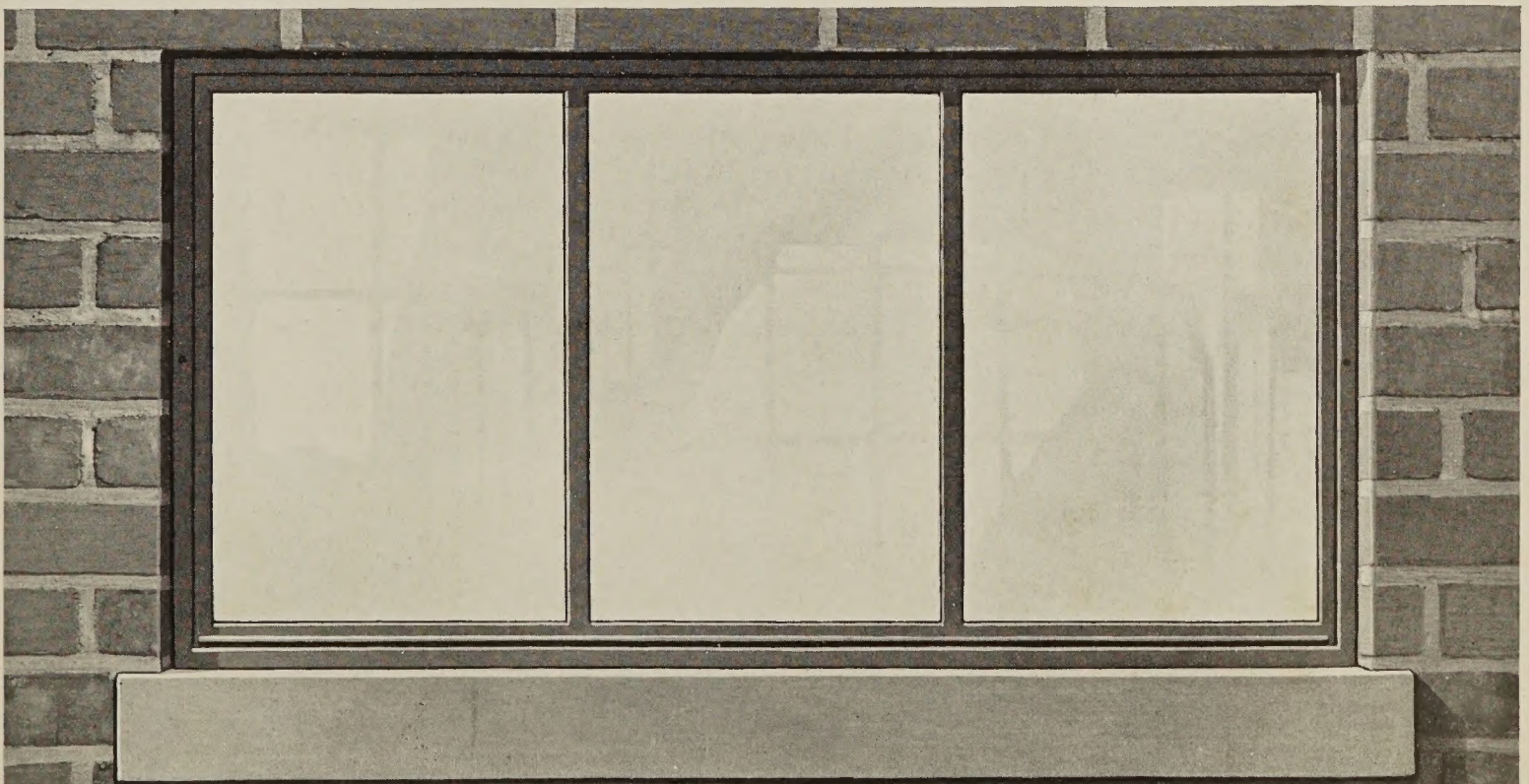
The rabbets that receive the glass should be bed-puttied first and the glass then set in place. The spring glazing clips are next inserted, with the twisted portion of the clip embedded in the putty at the edges of the glass. (In Havemeyer Basement Windows two sets of holes are provided for inserting the clips—one for ordinary glass, the other for heavier wire glass). The glazing clips are snapped into position in the holes provided for them, by springing down the end of the clip with the putty knife. A neat finish is secured by face-puttying in the usual manner.

No. 1218 and No. 1420 have been particularly designed to work out satisfactorily with concrete block, which are standardized to lay up in multiples of 16" wide and 8" high.

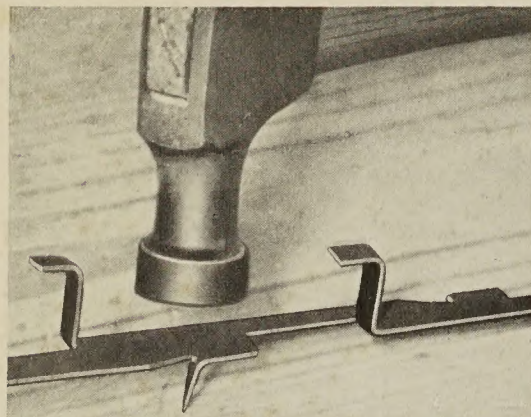
Havemeyer Basement Windows are supplied assembled complete with glazing clips, but without glass, in the following sizes:



Style No.	Description.	Weight lbs.	Masonry Opening.
1012	3 light 10 x 12"	18	34 $\frac{1}{8}$ x 14 $\frac{3}{4}$ "
1218	3 light 12 x 18"	23	40 $\frac{1}{8}$ x 20 $\frac{3}{4}$ "
1020	3 light 10 x 20"	22	34 $\frac{1}{8}$ x 22 $\frac{3}{4}$ "
1420	2 light 14 x 20"	20	31 $\frac{3}{4}$ x 22 $\frac{3}{4}$ "



Havemeyer Security Anchors

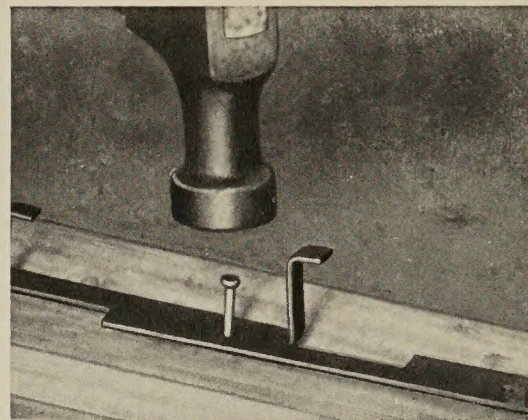
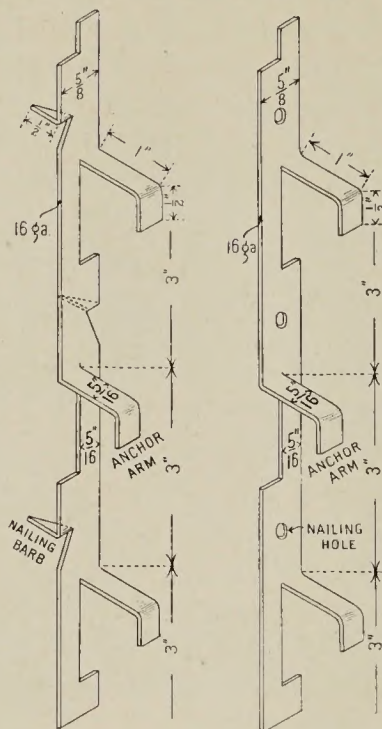


Nailing with Barbs

HAVEMEYER Security Anchor is a device for bonding brick veneer, terra cotta, stone or tile wainscoting and plaster to concrete surfaces, and also for suspending metal lath ceilings, holding floor sleepers, etc. It is made from $\frac{5}{8}$ " x 16 gauge hoop steel, dipped, and is furnished in 8' standard lengths with self-contained anchor arms and either nailing barbs or nailing holes.

As shown in the accompanying illustrations, Havemeyer Security Anchor is nailed to the forms so that the self-contained anchor arms extend into the concrete in such a way as to secure the strongest grip.

When the forms are removed, it is a simple matter to pry between the Anchor and the wall, wherever necessary, to form loops for the insertion of Havemeyer Security Wall-Tys. These loops may be opened at any point along the strip, and the Wall-Ty can be raised or lowered several inches so as to fit accurately



Nailing with Nails

between the joints of the stone or brick used on the wall. This gives a positive anchor, with the arms extending at the proper place, and forms the strongest tie between a concrete wall and facing of masonry. The Security Wall-Ty will not rust or become loose.

Used as an anchor for sleepers, it is embedded in the surface of the concrete. Sleepers are laid crosswise and wire is inserted under the anchor and around the sleeper, thus holding the sleeper rigidly to the concrete base.

Havemeyer Security Anchor has been in extensive use all over the country and has given complete satisfaction in the various purposes for which it is adapted. Havemeyer Security Anchors are specified by many leading architects and engineers.

Large stocks of Security Anchor and Wall-Tys are carried at all Concrete Steel Company warehouses, ready for immediate shipment. Samples are furnished on request.



Security Wall-Tys

